

**CITY OF NEWTON
PURCHASING DEPARTMENT**

***CONTRACT FOR PUBLIC WORKS DEPARTMENT
(M.G.L. Ch. 30, Sec. 39m)***

**PROJECT MANUAL:
FOR THE REPLACEMENT OF A PORTION OF THE
GORDON ROAD SEWER AND DRAIN
*INVITATION FOR BID#12-17***

Bid Opening Date: October 14, 2011 at 10:00 a.m.

**SEPTEMBER 2011
Setti D. Warren, Mayor**

**CITY OF NEWTON
PURCHASING DEPARTMENT
INVITATION FOR BID #12-17**

The City of Newton invites sealed bids from Contractors for the:

**For the replacement of a portion of the
GORDON ROAD SEWER and DRAIN**

Bids will be received until: 10:00 a.m., October 14, 2011

at the Purchasing Department, Room 204, Newton City Hall, 1000 Commonwealth Ave., Newton, MA 02459. Immediately following the deadline for bids all bids received within the time specified will be publicly opened and read aloud.

The work under this contract is for the replacement of approximately two hundred twenty (220) linear feet of an existing ten inch (10") diameter sewer, and for two (2) separate spot repairs to an existing eighteen inch (18") diameter drain line (for a collective yield of approximately fifty (50) linear feet). Note that the sewer work portion of this contract will require a continuous operating bypass pump along with the associated piping system.

Contract Documents will be available online at www.ci.newton.ma.us/bids or pick up at the Purchasing Department after **10:00 a.m., September 29, 2011.**

Bids must be submitted with one Original and one Copy.

A bid deposit in an amount that is not less than five percent (5%) of the value of the bid, including all add alternates, is required. Bid deposits, payable to the City of Newton, shall be either in the form of a bid bond, or cash, or a certified check on, or a treasurer's or cashier's check issued by, a responsible bank or trust company.

The City of Newton will award the contract to the lowest eligible and responsible bidder. Please Note: this bid, in accordance with the Chapter 303 Acts of 2008, contains Price Adjustments and new Prevailing Wage requirements. All bidders are required to familiarize themselves with these terms and conditions before submitting a bid.

Anticipated start date is November 1, 2011. Time for completion is thirty (30) days from the Notice To Proceed.

All bids are subject to the provisions of M.G.L. Chapter 30, Section 39M. **Wages are subject** to minimum wage rates determined by the Massachusetts Department of Labor and Industries pursuant to M.G.L. Chapter 149, Sec. 26 to 27H. The schedule of wage rates applicable to this contract is included in the bidding documents. In addition, the prevailing wage schedule will be updated annually for all public construction projects lasting longer than one (1) year. You will be required to pay the rates set out in any updated prevailing wage schedule. Increases in prevailing wage schedules will not be the basis for change order requests. The successful bidder will be required to provide a Certificate of Insurance demonstrating current coverage of the type and amounts set forth in the Project Manual. The successful bidder will be required to furnish a **Performance Bond and Labor and Materials Payment Bond in the amount of 100%** of the contract total. Wages are paid to drivers for all "on-site" work.

Once you've downloaded this bid from the internet website (www.ci.newton.ma.us/bids) I strongly suggest you email (purchasing@newtonma.gov) your company's Name, address, EMAIL, phone, fax AND the INVITATION FOR BID NUMBER and Project Title, so that we may add you to the Bidders List and you will be notified of any/all addendums.

The City of Newton will reject any and all bids when required to do so by the above referenced General Laws. In addition, the City of Newton reserves the right to waive any informalities in any or all bids, or to reject any or all bids (in whole or in part) if it be in the public interest to do so.

CITY OF NEWTON
Rositha Durham
Chief Procurement Officer
September 29, 2011

**CITY OF NEWTON
DEPARTMENT OF PURCHASING
INSTRUCTIONS TO BIDDERS**

ARTICLE 1 - BIDDER'S REPRESENTATION

- 1.1 Each General Bidder (hereinafter called the "Bidder") by making a bid (hereinafter called "bid") represents that:
1. The Bidder has read and understands the Contract Documents and the bid is made in accordance therewith.
 2. The Bidder has visited the site and is familiar with the local conditions under which the Work has to be performed.
- 1.2 Failure to so examine the Contract Documents and site will not relieve any Bidder from any obligation under the bid as submitted.

ARTICLE 2 - REQUEST FOR INTERPRETATION

- 2.1 Bidders shall promptly notify the City of any ambiguity, inconsistency, or error which they may discover upon examination of the Contract Documents, the site, and local conditions.
- 2.2 Bidders requiring clarification or interpretation of the Contract Documents shall make a written request to the *Chief Procurement Officer*, at purchasing@newtonma.gov or via facsimile (617) 796-1227. The City will answer such requests if received Thursday, October 6, 2011 at 12:00 noon.
- 2.3 Interpretation, correction, or change in the Contract Documents will be made by Addendum which will become part of the Contract Documents. The City will not be held accountable for any oral instruction.
- 2.4 Addenda will be emailed to every individual or firm on record as having taken a set of Contract Documents.
- 2.5 Copies of addenda will be made available for inspection at the location listed in the Invitation for Bids where Contract Documents are on file, in addition to being available online at www.ci.newton.ma.us/bids.
- 2.6 Bidders or proposers contacting ANY CITY EMPLOYEE regarding an Invitation for Bid (IFB) or a Request for Proposal (RFP), outside of the Purchasing Department, once an IFB or RFP has been released, may be disqualified from the bidding process.
- 2.7 Bidders downloading information off the internet web site are solely responsible for obtaining any addenda prior to the bid opening. If the bidder makes themselves known to the Purchasing Dept., at purchasing@newtonma.gov or via facsimile (617) 796-1227, they shall be placed on the bidder's list. Bidders must provide the Purchasing Dept. with their company's name, street address, city, state, zip, phone, fax, email address and **INVITATION FOR BID #12-17**.

ARTICLE 3 - MBE PARTICIPATION

- 3.1 Notice is hereby given that the Mayor's Affirmative Action Plan for the City of Newton, dated December 1999 is applicable to all construction contracts in excess of \$10,000.00. A copy of this plan is on file at City of Newton Purchasing Department.
- 3.2 Notice is hereby given that the City of Newton Minority/Women Business Enterprise Plan dated December 1999 and the Supplemental Equal Employment Opportunity Anti-Discrimination and Affirmative Action Program is applicable to all City contracts for goods and services in excess of \$50,000.00. Copies of these plans are incorporated in the bidding documents.

ARTICLE 4 - PREPARATION AND SUBMISSION OF BIDS

- 4.1 Bids shall be submitted on the "Bid Form" as appropriate, furnished by the City.

- 4.2 All entries on the Bid Form shall be made by typewriter or in ink.
- 4.3 Where so indicated on the Bid Form, sums shall be expressed in both words and figures. Where there is a discrepancy between the bid sum expressed in words and the bid sum expressed in figures, the words shall control.
- 4.4 Bid Deposits shall be submitted in the amount specified in the Invitation for Bids. They shall be made payable to the City of Newton and shall be either in the form of cash, certified check, treasurer's or cashier's check issued by a responsible bank or trust company, or a bid bond issued by a surety licensed to do business in the Commonwealth of Massachusetts; and shall be conditioned upon the faithful performance by the principal of the agreements contained in the bid.
- Bid deposits of the three (3) lowest responsible and eligible Bidders shall be retained until the execution and delivery of the Owner/Contractor agreement.
- 4.5 The Bid, including the bid deposit shall be enclosed in a sealed envelope with the following plainly marked on the outside:
- * GENERAL BID FOR:
 - * NAME OF PROJECT AND **INVITATION NUMBER**
 - * BIDDER'S NAME, BUSINESS ADDRESS, AND PHONE NUMBER
- 4.6 Date and time for receipt of bids is set forth in the Invitation for Bids.
- 4.7 Timely delivery of a bid at the location designated shall be the full responsibility of the Bidder.
- 4.8 Bids shall be submitted with one original and one copy. Be advised that a new Massachusetts law has been enacted that required all employees who work on Massachusetts public works construction sites must have no less than 10 hours of OSHA-approved safety and health training. See Chapter 306 of the Acts of 2004, which will become effective July 1, 2006.
1. This requirement will apply to any general bid or sub bid submitted on or after July 1, 2006 and to any contract awarded on or after July 1, 2006.
 2. This law directs the Massachusetts Attorney General to restrain the award of construction contracts to any contractor who is in violation to this requirement and to restrain the performance of these contracts by non-complying contractors.
 3. The contractor and all subcontractors on this project will be required to provide certification of compliance with this requirement. Non-compliance with this new Massachusetts Law will disqualify you from bidding on public contracts.

ARTICLE 5 - ALTERNATES

- 5.1 Each Bidder shall acknowledge Alternates (if any) in Section C on the Bid Form.
- 5.2 In the event an Alternate does not involve a change in the amount of the base bid, the Bidder shall so indicated by writing "No Change", or "N/C" or "0" in the space provided for that Alternate.
- 5.3 Bidders shall enter on the Bid Form a single amount for each Alternate which shall consist of the amount for work performed by the Contractor.
- 5.4 The low Bidder will be determined on the basis of the sum of the base bid and the accepted alternates.

ARTICLE 6 - WITHDRAWAL OF BIDS

- 6.1 Any bid may be withdrawn prior to the time designated for receipt of bids on written or telegraphic request. Telegraphic withdrawal of bids must be confirmed over the Bidder's signature by written notice postmarked on or before the date and time set for receipt of bids.
- 6.2 Withdrawn bids may be resubmitted up to the time designated for the receipt of bids.
- 6.3 No bids shall be withdrawn within thirty days, Saturdays, Sundays and legal holidays excluded, after the opening of the bids.

ARTICLE 7 - CONTRACT AWARD

- 7.1 The City of Newton will award the contract to the lowest eligible and responsible Bidder within thirty days, Saturdays, Sundays, and legal holidays excluded after the opening of bids.
- 7.2 The City of Newton reserves the right to waive any informalities in or to reject any or all Bids if it be in the public interest to do so.
- 7.3 As used herein, the term "lowest responsible and eligible Bidder" shall mean the Bidder (1) whose bid is the lowest of those bidders possessing the skill, ability and integrity necessary for the faithful performance of the work; (2) who shall certify that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (3) who, where the provisions of section eight B of chapter twenty-nine apply, shall have been determined to be qualified thereunder.
- 7.4 Subsequent to the award and within five (5) days, Saturday, Sundays and legal holidays excluded, after the prescribed forms are presented for signature, the successful Bidder shall execute and deliver to the City a Contract in the form included in the Contract Documents in such number of counterparts as the City may require.
- 7.5 In the event that the City receives low bids in identical amount from two or more responsive and responsible Bidders, the City shall select the successful Bidder by a blind selection process such as flipping a coin or drawing names from a hat. The low Bidders who are under consideration will be invited to attend and observe the selection process.

ARTICLE 8 - TAXES

- 8.1 The Bidder shall not include in this bid any tax imposed upon the sale or rental of tangible personal property in this Commonwealth, such as any and all building materials, supplies, services and equipment required to complete the work.
- 8.2 The City is exempt from payment of the Massachusetts Sales Tax, and the Bidder shall not include any sales tax on its bid. The City's exemption Number is E-046-001-404.

END OF SECTION

CITY OF NEWTON

DEPARTMENT OF PURCHASING

BID FORM #12-17

- A. The undersigned proposes to supply and deliver the materials specified below in full accordance with the Contract Documents and Project Manual supplied by the City of Newton entitled:

**For the replacement of a portion of the
GORDON ROAD SEWER and DRAIN**

for the contract price specified below, subject to additions and deduction according to the terms of the specifications.

- B. This bid includes addenda number(s) _____, _____, _____, _____,
- C. The Contractor shall insert prices for each item in ink, in both words and figures.

_____ Dollars and \$ _____
(Contract price shall equal the Total of the attached Item Sheets)

COMPANY NAME: _____

- D. The undersigned has completed and submits herewith the following documents:

- ☐ Bidder's Qualifications and References Form, 2 pages
- ☐ Certificate of Non-Collusion, 1 page
- ☐ Signed Bid Form, 2 pages
- ☐ Item Sheets, 9 pages
- ☐ A five percent (5%) bid deposit.

- E. The undersigned agrees that, if selected as general contractor, s/he will within five days, Saturdays, Sundays and legal holidays excluded, after presentation thereof by the City of Newton, execute a contract in accordance with the terms of this bid **and furnish a performan bond and a labor and materials payment bond** of a surety company qualified to do business under the laws of the commonwealth and satisfactory to the City of Newton in the **sum not less than 100% of the contract price**, the premiums for which are to be paid by the contractor and are included in the contract price.

The undersigned hereby certifies that s/he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed on the work and that s/he will comply fully with all laws and regulations applicable to awards made subject to section forty-four A of M.G.L. Chapter 30, s 39M.

The undersigned certifies that he is able to furnish labor that can work in harmony with all other elements of labor employed or to be employed in the work; (2) that all employees to be employed at the worksite will have successfully completed a course in construction safety and health approved by the United States Occupational Safety and Health Administration ("OSHA") that is at least 10 hours in duration at the time the employee begins work and who shall furnish documentation of successful completion of said course with the first certified payroll report for each employee; and (3) that all employees to be employed in the work subject to this bid have successfully completed a course in construction safety and health approved by the United States OSHA that is at least 10 hours in duration. The undersigned understands that any employee found on a worksite subject to this section without documentation of successful completion of a course

in construction safety and health approved by the United States Occupational Safety and Health Administration that is at least 10 hours in duration shall be subject to immediate removal.

The undersigned further certifies under the penalties of perjury that this bid is in all respects bona fide, fair and made without collusion or fraud with any other person. As used in this subsection the word "person" shall mean any natural person, joint venture, partnership, corporation or other business or legal entity. The undersigned further certifies under penalty of perjury that the said undersigned is not presently debarred from doing public construction work in the Commonwealth under the provisions of section twenty-nine F of chapter twenty-nine, or any other applicable debarment provisions of any other chapter of the General Laws or any rule or regulation promulgated thereunder.

The undersigned further certifies under the penalties of perjury that they have familiarized themselves with the changes to the Prevailing Wage Rates, Price Adjustment Clauses, in accordance to Chapter 303 Acts of 2008.

Date _____

(Name of General Bidder)

BY: _____

(Printed Name and Title of Signatory)

(Business Address)

(City, State Zip)

(Telephone)

/ _____
(FAX)

(E-mail address)

NOTE: If the bidder is a corporation, indicate state of incorporation under signature, and affix corporate seal; if a partnership, give full names and residential addresses of all partners; if an individual, give residential address if different from business address; and, if operating as a d/b/a give full legal identity. Attach additional pages as necessary.

END OF SECTION

CITY OF NEWTON

BIDDER'S QUALIFICATIONS AND REFERENCES FORM

All questions must be answered, and the data given must be clear and comprehensive. Please type or print legibly. If necessary, add additional sheet for starred items. This information will be utilized by the City of Newton for purposes of determining bidder responsiveness and responsibility with regard to the requirements and specifications of the Contract.

1. FIRM NAME: _____
2. WHEN ORGANIZED: _____
3. INCORPORATED? ____ YES ____ NO DATE AND STATE OF INCORPORATION: _____
4. IS YOUR BUSINESS A **MBE**? ____ YES ____ NO **WBE**? ____ YES ____ NO or **MWBE**? ____ YES ____ NO
- * 5. LIST ALL CONTRACTS CURRENTLY ON HAND, SHOWING CONTRACT AMOUNT AND ANTICIPATED DATE OF COMPLETION:

- * 6. HAVE YOU EVER FAILED TO COMPLETE A CONTRACT AWARDED TO YOU?
____ YES ____ NO
IF YES, WHERE AND WHY?

- * 7. HAVE YOU EVER DEFAULTED ON A CONTRACT? ____ YES ____ NO
IF YES, PROVIDE DETAILS.

- * 8. LIST YOUR VEHICLES/EQUIPMENT AVAILABLE FOR THIS CONTRACT:

- * 9. IN THE SPACES FOLLOWING, PROVIDE INFORMATION REGARDING CONTRACTS COMPLETED BY YOUR FIRM SIMILAR IN NATURE TO THE PROJECT BEING BID. A MINIMUM OF FOUR (4) CONTRACTS SHALL BE LISTED. PUBLICLY BID CONTRACTS ARE PREFERRED, BUT NOT MANDATORY.

PROJECT NAME: _____
OWNER: _____
CITY/STATE: _____

DOLLAR AMOUNT: \$ _____ DATE COMPLETED: _____
PUBLICLY BID? _____ YES _____ NO
TYPE OF WORK?: _____
CONTACT PERSON: _____ TELEPHONE #: (____) _____
CONTACT PERSON'S RELATION TO PROJECT?: _____
(i.e., contract manager, purchasing agent, etc.)

PROJECT NAME: _____
OWNER: _____
CITY/STATE: _____
DOLLAR AMOUNT: \$ _____ DATE COMPLETED: _____
PUBLICLY BID? _____ YES _____ NO
TYPE OF WORK?: _____
CONTACT PERSON: _____ TELEPHONE #: (____) _____
CONTACT PERSON'S RELATION TO PROJECT?: _____
(i.e., contract manager, purchasing agent, etc.)

PROJECT NAME: _____
OWNER: _____
CITY/STATE: _____
DOLLAR AMOUNT: \$ _____ DATE COMPLETED: _____
PUBLICLY BID? _____ YES _____ NO
TYPE OF WORK?: _____
CONTACT PERSON: _____ TELEPHONE #: (____) _____
CONTACT PERSON'S RELATION TO PROJECT?: _____
(i.e., contract manager, purchasing agent, etc.)

PROJECT NAME: _____
OWNER: _____
CITY/STATE: _____
DOLLAR AMOUNT: \$ _____ DATE COMPLETED: _____
PUBLICLY BID? _____ YES _____ NO
TYPE OF WORK?: _____
CONTACT PERSON: _____ TELEPHONE #: (____) _____
CONTACT PERSON'S RELATION TO PROJECT?: _____
(i.e., contract manager, purchasing agent, etc.)

10. The undersigned certifies that the information contained herein is complete and accurate and hereby authorizes and requests any person, firm, or corporation to furnish any information requested by the City of Newton in verification of the recitals comprising this statement of Bidder's qualifications and experience.

DATE: _____ BIDDER: _____

SIGNATURE: _____

PRINTED NAME: _____ TITLE: _____

END OF SECTION

CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word “person” shall mean any natural person, business, partnership, corporation, union, committee club, or other organization, entity, or group or individuals.

(Signature of individual)

Name of Business

CONTRACT FORMS

The forms are provided for informational purposes only.

The awarded bidder will be required to complete and submit the following documents in order to execute a contract pursuant to this bid.

None of the following forms are required at the time of bid submittal.

CITY - CONTRACTOR AGREEMENT

CONTRACT NO. C -

THIS AGREEMENT made this ____ day of _____ in the year Two Thousand and Eleven by and between the CITY OF NEWTON, a municipal corporation organized and existing under the laws of the Commonwealth of Massachusetts, hereinafter referred to as the CITY, acting through its Chief Procurement Officer, but without personal liability to him, and hereinafter referred to as the CONTRACTOR.

The parties hereto for the considerations hereinafter set forth agree as follows:

ARTICLE 1. STATEMENT OF WORK. The Contractor shall furnish all labor, materials, and equipment and perform all work required in strict accordance with the Contract Documents for the following project:

**For the replacement of a portion of the
GORDON ROAD SEWER and DRAIN**

ARTICLE 2. TIME OF COMPLETION. The Contractor shall commence work under this Contract on the date specified in the written notice of the City to proceed and shall fully complete all work hereunder within the time specified in the Summary of Work and Specific Work Requirements of the Project Manual. Time is of the essence with regard to this contract, with all work to be completed within thirty **(30) calendar days from the Notice To Proceed..** Failure to complete within the time specified shall be subject to the assessment of liquidated damages in accordance with the provisions contained in the Project Manual.

ARTICLE 3. THE CONTRACT PRICE. The City shall pay the Contractor for the full and satisfactory performance of the Contract, in current funds a sum not to exceed:

(\$)

ARTICLE 4. CONTRACT DOCUMENTS. The Contract Documents consist of the following documents which are either attached to this Agreement or are incorporated herein by reference:

- a. This CITY-CONTRACTOR Agreement;
- b. The City's Invitation For Bid #12-17 issued by the Purchasing Department;
- c. The Project Manual for: , For the replacement of a portion of the GORDON ROAD SEWER and DRAIN, including the Instructions to Bidders; General Conditions; Special Conditions; MWBE/AA Requirements, Wage Rate Requirements and Wage Rate Schedule(s) including any updated prevailing wage rate schedules if applicable; The Supplementary Special Conditions; General Requirements and Project Specifications; and Drawings, if included or referenced therein;
- d. Addenda Number(s) N/A ;
- e. The Bid Response of the CONTRACTOR submitted for this Project and accompanying documents and certifications;
- f. Certificate(s) of Insurance and surety bond(s) submitted by the CONTRACTOR in connection with this Project;

g. Duly authorized and executed Amendments, Change Orders or Shipping Orders issued by the CITY after execution of this CITY-CONTRACTOR Agreement.

This CITY-CONTRACTOR Agreement, together with the other documents enumerated in this Article, constitute the entire Agreement between the CITY and the CONTRACTOR.

ARTICLE 5. ALTERNATES. The following Alternates have been accepted and their costs are included in the Contract Price stated in Article 3 of this Agreement:

Alternates: N/A

ARTICLE 6. APPLICABLE STATUTES. All applicable federal, state and local laws and regulations are incorporated herein by reference and the Contractor agrees to comply with same.

IN WITNESS WHEREOF, the parties have caused this instrument to be executed under seal the day and year first above written.

CONTRACTOR

By _____
Print Name _____
Title _____
Date _____

Affix Corporate Seal Here

City funds in the amount of
\$ _____ are
available in account number
33L401W-586002B

I further certify that the Mayor, or his
designee, is authorized to execute contracts
and approve change orders

By _____
Comptroller of Accounts

Date _____

CITY OF NEWTON

By _____
Chief Procurement Officer

Date _____

By _____
Commissioner of Public Works

Date _____

Approved as to Legal Form and Character

By _____
Associate City Solicitor

Date _____

CONTRACT & BONDS ARE APPROVED

By _____
Mayor or his designee

Date _____

CERTIFICATE OF AUTHORITY - CORPORATE

1. I hereby certify that I am the Clerk/Secretary of _____
(insert full name of Corporation)
2. corporation, and that _____
(insert the name of officer who signed the **contract and bonds.**)
3. is the duly elected _____
(insert the title of the officer in line 2)
4. of said corporation, and that on _____
(insert a date that is ***ON OR BEFORE*** the date the officer signed the **contract and bonds.**)

at a duly authorized meeting of the Board of Directors of said corporation, at which all the directors were present or waived notice, it was voted that

5. _____ the _____
(insert **name** from line 2) (insert **title** from line 3)

of this corporation be and hereby is authorized to execute contracts and bonds in the name and on behalf of said corporation, and affix its Corporate Seal thereto, and such execution of any contract of obligation in this corporation's name and on its behalf, with or without the Corporate Seal, shall be valid and binding upon this corporation; and that the above vote has not been amended or rescinded and remains in full force and effect as of the date set forth below.

6. ATTEST: _____ *AFFIX CORPORATE*
(Signature of **Clerk or Secretary**)* *SEAL HERE*
7. Name: _____
(Please print or type name in line 6)*
8. Date: _____
(insert a date that is ***ON OR AFTER*** the date the officer signed the **contract and bonds.**)

* The name and signature inserted in lines 6 & 7 **must** be that of the **Clerk or Secretary** of the corporation.

ATTESTATION

Pursuant to MG c. 62C, § 49A, the undersigned acting on behalf of the Contractor, certifies under the penalties of perjury that, to the best of the undersign's knowledge and belief, the Contractor is in compliance with all laws of the Commonwealth relating to taxes, reporting of employees and contractors, and withholding and remitting child support.*

**Signature of Individual
or Corporate Contractor (Mandatory)

*** Contractor's Social Security Number
(Voluntary) or Federal Identification Number

By: _____
Corporate Officer
(Mandatory, if applicable)

Date: _____

* The provision in the Attestation relating to child support applies only when the Contractor is an individual.

** Approval of a contract or other agreement will not be granted unless the applicant signs this certification clause.

*** Your social security number will be furnished to the Massachusetts Department of Revenue to determine whether you have met tax filing or tax payment obligations. Providers who fail to correct their non-filing or delinquency will not have a contract or other agreement issued, renewed, or extended. This request is made under the authority of GL c. 62C, § 49A.

CITY OF NEWTON, MASSACHUSETTS

PERFORMANCE BOND

Know All Men By These Presents:

That we, _____, as PRINCIPAL, and _____, as SURETY, are held and firmly bound unto the City of Newton as Obligee, in the sum of _____ dollars (\$_____) to be paid to the Obligee, for which payments well and truly to be made, we bind ourselves, our respective heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Whereas, the said PRINCIPAL has made a contract with the Obligee, bearing the date of _____, 2011 for the construction of _____ in Newton, Massachusetts.
(Project Title)

Now, the condition of this obligation is such that if the PRINCIPAL and all Sub-contractors under said contract shall well and truly keep and perform all the undertakings, covenants, agreements, terms and conditions of said contract on its part to be kept and performed during the original term of said contract and any extensions thereof that may be granted by the Obligee, with or without notice to the SURETY, and during the life and any guarantee required under the contract, and shall also well and truly keep and perform all the undertakings, covenants, agreements, terms and conditions of any and all duly authorized modifications, alterations, changes or additions to said contract that may hereafter be made, notice to the SURETY of such modifications, alterations, changes or additions being hereby waived, then this obligation shall become null and void; otherwise, it shall remain in full force, virtue and effect.

In the event, that the contract is abandoned by the PRINCIPAL, or in the event that the Obligee terminates the employment of the PRINCIPAL or the authority of the PRINCIPAL to continue the work said SURETY hereby further agrees that said SURETY shall, if requested in writing by the Obligee, take such action as is necessary to complete said contract.

In Witness Whereof, the PRINCIPAL and SURETY have hereto set their hands and seals this ____ day of _____ 2011.

PRINCIPAL

SURETY

BY _____
(SEAL)

BY _____
(ATTORNEY-IN-FACT) (SEAL)

(Title)

ATTEST: _____

ATTEST: _____

CITY OF NEWTON, MASSACHUSETTS

PAYMENT BOND

Know All Men By These Presents:

That we, _____, as PRINCIPAL, and _____, as SURETY, are held and firmly bound unto the City of Newton as Obligee, in the sum of _____ dollars (\$_____) to be paid to the Obligee, for which payments well and truly to be made, we bind ourselves, our respective heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

Whereas, the said PRINCIPAL has made a contract with the Obligee, bearing the date of _____, 2011 for the construction of _____ in Newton, Massachusetts.
(Project Title)

Now, the conditions of this obligation are such that if the PRINCIPAL and all Sub-contractors under said contract shall pay for all labor performed or furnished and for all materials used or employed in said contract and in any and all duly authorized modifications, alterations, extensions of time, changes or additions to said contract that may hereafter be made, notice to the SURETY of such modifications, alterations, extensions of time, changes or additions being hereby waived, the foregoing to include any other purposes or items set out in, and to be subject to, provisions of M.G.L. c. 30, sec. 39A, and M.G.L. c. 149 sec. 29, as amended, then this obligation shall become null and void; otherwise it shall remain in full force, virtue and effect.

In Witness Whereof, the PRINCIPAL and SURETY have hereto set their hands and seals this ____ day of _____ 2011.

PRINCIPAL

SURETY

BY _____

BY _____

(SEAL)

(ATTORNEY-IN-FACT) (SEAL)

(Title)

ATTEST: _____

ATTEST: _____

CITY OF NEWTON
GENERAL CONDITIONS OF THE CONTRACT
FOR PUBLIC WORKS CONSTRUCTION

ARTICLE 1

(DELETED)

ARTICLE 2

Definitions

The word "Commissioner" shall mean the official duly authorized to act for the City of Newton in the execution of the work of this contract, acting directly or through properly authorized agents.

The word "Engineer," or "City Engineer," shall mean the City Engineer of the City of Newton, acting directly or through properly authorized agents, such agents acting within the scope of the particular duties entrusted to them.

The word "Contractor" shall mean the party or parties contracting to perform the work covered by this contract or his, or their, legal representatives, successors or assigns.

The word "Plan" shall mean plans referred to and included in the Project Manual for this contract. The word "City" shall mean the City of Newton.

ARTICLE 3

Plans, Drawings, Profiles

1. The work shall be done in accordance with plans referred to in Article 1 and such further working and detail plans, drawings and profiles as may be furnished from time to time by the Engineer. All said plans, general and detail, are to be deemed a part of this contract, and the said plans, specifications and contract are to be considered together, so that any work mentioned in the contract, though not shown on the plans, and any work shown on the plans though not mentioned in the contract, is to be executed by the Contractor as a part of this contract. Figured dimensions are to prevail over scale. All things which in the opinion of the Engineer may fairly be inferred from the contract, plans and specifications, are to be executed by the Contractor as a part of the contract; and the Engineer shall be sole judge as to whether detail plans, drawings and profiles conform to the general plans and the contract.

Discrepancy in Plans

2. The Contractor shall carefully examine all said plans, profiles, drawings, specifications and orders; all figures, dimensions, lines, marks and scales thereof, and all directions of the Commissioner and the Engineer relating to the work, and conform to those in relation to which there is no doubt or discrepancy, but at once submit all cases of doubt or discrepancy to the Engineer for adjustment. Anything done on any part of the work for which special information or drawing should be procured, unless done in accordance with such information or drawing, or anything done in relation to which there is doubt or discrepancy, except in accordance with the adjustment thereof, or done in violation of law or public authority, is to be redone if the Commissioner shall so direct.

ARTICLE 4

Inspection

1. The Contractor in carrying on the contract shall conform to all determinations and directions of the Engineer relating to the proper interpretation of the plans, specifications, profiles or drawings, the fitness of persons employed on the work or the number thereof, or the suitability, amount, quality, and value of anything done or any materials used, and the Contractor shall permit the Commissioner and the Engineer and persons designated by them to enter upon the work and inspect the same at all times and in all places, and shall provide safe and convenient facilities for making such entry and inspection.

ARTICLE 5

Change in Plans and Work

1. The City, acting through the Commissioner and upon his written order only, from time to time given to the Contractor or his foreman, may change, increase or take away any part of the work, or change the specifications, plans, drawings, form or materials thereof. Any deduction or addition thereto is to be allowed, or paid for at a price to be determined, within not more than 15 days of the completion of the change, by the City Engineer acting in the same capacity as an architect in a building contract as between owner and contractor. Any demand for addition or deduction must be made in writing to the City Engineer within seven (7) days of the time change was ordered.

ARTICLE 6

Time and Manner of Doing the work - Beginning and Completion

1. The Contractor shall begin work upon receipt of written Notice to Proceed. Once begun the work shall be carried out in a continuous and uninterrupted fashion with sufficient workforce and resources to assure completion by the date for completion established by the Contract Documents.

2. The Contractor shall carry on the work in accordance with the requirements of law and of all other public authorities, and to the satisfaction of the Commissioner; he shall give all notices, take out all permits, pay all charges and fees, give personal supervision to the work and keep thereon a competent foreman and sufficient employees, skilled in the several parts which are given them to do.

Maintenance of Travel

3. The Contractor shall conduct his work so as to interfere as little as possible with public travel, and shall give property owners proper means of access to their property where existing access has been cut off by the work. The Contractor shall keep the streets open for through travel except where, in the opinion of the Commissioner, it is necessary to close the street. The continuous length of the street occupied for the work shall be kept as short as possible, and no part of the work shall be unnecessarily delayed. Wherever the Commissioner shall direct, trenches shall be bridged by the Contractor in a proper and secure manner so as not to interrupt travel. Free access shall be maintained at all times to all water gates, gas gates, and fire hydrants.

Abandonment of Work by Contractor

4. In the event the City Engineer certifies to the Commissioner that the work is not being so carried forward or if the Contractor at any time is not carrying on the work to the satisfaction of the Commissioner, or is not observing any of the provisions of the contract, or has abandoned the work, or become insolvent or assigned his property, the City, acting by the Commissioner and at his discretion, may, with or without notice to the Contractor, or advertising for doing the work, and by contract, day labor or otherwise, do any part of the work which the Contractor has failed to do or replace any part not done to the satisfaction of the Commissioner, or take possession of the work and complete the same, and in doing so may use any implements, machinery or materials on or about the work which are the property of the Contractor, charging the Contractor any excess cost for completing the work, which excess cost the Contractor agrees to pay.

ARTICLE 6A

Liquidated Damages

1. In case the work embraced in the contract shall not have been completed by the date stipulated therein, the Contractor shall pay to the City of Newton as liquidated damages a designated sum per calendar day for the entire period of overrun in accordance with the following Schedule of Deductions, and in addition, the Contractor shall pay without reimbursement the entire cost of all traffic officers, railroad flagmen, inspectors, or other personnel the City Engineer and/or the Chief Engineer of the railroad determines to be necessary during the period of overrun of time.

SCHEDULE OF DEDUCTIONS

Daily Charge
Per Calendar Day

\$500.00

2. Whatever sum of money may become due and payable to the City of Newton by the Contractor under this Article may be retained out of money belonging to the Contractor in the hands and possession of the City of Newton. It is agreed that this Article shall be construed and treated by the parties to the contract not as imposing a penalty upon said Contractor for failing fully to complete said work as agreed on or before the time specified in the proposal, but as liquidated damages to compensate said City of Newton for all additional costs incurred by it because of the failure of the Contractor fully to complete said work on or before the date of completion specified in the proposal.

ARTICLE 6B

Delays and Extensions of Time

1. If the Contractor is delayed at any time in the progress of the work by an act or neglect of the City, or by changes in the work ordered by the City, or by unseasonably inclement weather, or by other causes deemed by the City Engineer to be beyond the Contractor's control, and which the City Engineer determines may justify delay, then the time for completion may be extended for such reasonable time as the City Engineer may determine.

2. No such extension of time will be allowed unless the Contractor submits a written request for an extension to the City Engineer no later than 10 calendar days of the start of the occurrence or event giving rise thereto. Each such request must describe the occurrence or event and specify the manner and extent that such occurrence or event is causing or has caused a delay in the work. The City Engineer shall promptly investigate each request and make his written determination to the Commissioner and the Contractor within 10 days after receipt of the request. In his determination the City Engineer may either grant, deny, or modify the length of the requested extension.

3. If the City Engineer's determination so warrants, the Commissioner shall authorize a written Change Order to the Contract extending the time for completion. No extension of time shall be deemed as granted until said Change Order has been duly executed by the parties.

4. Change Orders which may be executed by the City and the Contractor in connection with additions, extra labor and/or extra materials shall not be considered as allowing extensions of the time for completion unless the change order expressly specifies that additional time is allowed in connection with the work under the change order. Once a Change Order has been executed by the parties, any request by the Contractor for an extension of time based solely on the fact that additions, extra labor and/or extra materials are required by the Change Order will be denied by the City Engineer.

5. Permitting the Contractor to continue and finish the work or any part of it after the times fixed for its completion, or after the date to which the time for completion may have been extended, shall in no way operate as a waiver on the part of the City of Newton of any of its rights under the contract. The Contractor remains liable for damages caused other than by delay.

ARTICLE 7

Lines and Grades

1. The Contractor shall retain a Registered Land Surveyor who shall furnish such boards and stakes and cause to be placed thereon, such lines, marks and directions relating to the work as the Commissioner or City Engineer shall from time to time direct.

ARTICLE 8

Public Service Pipes and Conduits

1. The Contractor shall maintain such pipes or conduits of public service corporations or of the City as are across or within the lines of the work until such time as said public service corporations or the City assume the maintenance or removal of said pipes or conduits. The Commissioner will notify such public service corporations to that effect on the existence of such obstructions to the work being brought to his notice by the Contractor. The City will relocate either temporarily or permanently all water mains and water service pipes, or hydrants, and drains or sewers which may interfere with the work contemplated in this contract. (This clause is not to be construed as applying to such pipes as may be readily supported and protected during the progress of the work.) The cost of shutting off and turning on water in water mains during blasting shall be assumed by the City.

Protection of Existing Structures

2. All existing gas pipes, water pipes, sewers, drains, conduits, or other structures which are uncovered by the excavation shall be carefully supported and protected from injury by the Contractor, and, in case of injury, they shall be restored by him, without compensation therefor, to as good condition as that in which they were found, and shall be kept in repair until 6 months after the completion of the work. The Contractor shall provide suitable temporary channels for water at all water courses. Wherever the work passes under or adjacent to street railway tracks, the Contractor shall make all necessary arrangements with the railway company for doing any work which may affect the property of the company or interfere with the operating of the railway, and he shall be liable for any damage that may be caused by any act, omission or neglect on his part, and shall pay all expenses of every kind incidental to this work.

Changing the Location of Existing Structures

3. Whenever it becomes necessary to change the location of any water or gas pipes, sewers, drains, conduits or other structures not otherwise provided for in these specifications, the Contractor shall do the whole or such portions of the work of making such changes as the Commissioner may require, and shall receive in payment therefor the reasonable cost of the work done as determined by the Commissioner plus 15 per cent of such cost. In estimating such cost, no allowance shall be made to the Contractor for the use of tools not especially provided for this work, for general superintendence, or for any overhead expenses except liability insurance.

ARTICLE 9

Co-operation with Other Contractors

1. The Contractor shall conduct the work in such manner as not to interfere with other work being done by the City, by contract or otherwise, and if deemed necessary by the Commissioner, the work under this contract shall conform to the progress of said other work; shall co-operate with other contractors or employees who may be doing work for the City, and with public service corporations affected by the work, in arranging for storage places, connections, bracings, temporary support for structures, repairs, etc.

ARTICLE 10

Subcontracts

1. The Contractor, in any contract with a Subcontractor, shall provide that the Subcontractor shall be subject to all specifications, terms, provisions, conditions, requirements and liabilities set forth in this contract so far as such specifications, terms, provisions, conditions, requirements and liabilities are applicable to the work to be done under such Subcontract, and shall also provide that such Subcontract shall be terminated by the Contractor whenever the Commissioner shall certify to him in writing that in his opinion the work of the Subcontractor is unnecessarily or unreasonably delayed or that the Subcontractor has violated any of the provisions of this contract. The Contractor shall at once terminate such subcontract if the Commissioner, after certifying as aforesaid, shall in writing direct the Contractor to make such termination.

2. Subcontracts shall be made in writing and the Contractor shall furnish the Commissioner with a copy of his subcontracts on demand.

3. Pursuant to the provisions of M.G.L. Ch. 30, Sec. 39F (1), the following provisions are included in the General Conditions:

(a) Forthwith after the general contractor receives payment on account of a periodic estimate, the general contractor shall pay to each subcontractor the amount paid for the labor performed and the materials furnished by that subcontractor, less any amount specified in any court proceedings barring such payment and also less any amount claimed due from the subcontractor by the general contractor.

(b) Not later than the sixty-fifth day after each subcontractor substantially completes his work in accordance with the plans and specifications, the entire balance due under the subcontract less amounts retained by the awarding authority as the estimated cost of completing the incomplete and unsatisfactory items of work, shall be due the subcontractor; and the awarding authority shall pay that amount to the general contractor. The general contractor shall forthwith pay to the subcontractor the full amount received from the awarding authority less any amount specified in any court proceedings barring the payment and also less any amount claimed due from the subcontractor by the general contractor.

(c) Each payment made by the awarding authority to the general contractor pursuant to subparagraphs (a) and (b) of this paragraph for the labor performed and the materials furnished by a subcontractor shall be made to the general contractor for the account of the subcontractor; and the awarding authority shall take reasonable steps to compel the general contractor to make each such payment to each such subcontractor. If the awarding authority has received a demand for direct payment from a subcontractor for any amount which has already been included in a payment to the general contractor or which is to be included in a payment to the general contractor for payment to the subcontractor as provided in subparagraphs (a) and (b), the awarding authority shall act upon the demand as provided in this section.

(d) If, within seventy days after the subcontractor has substantially completed the subcontract work, the subcontractor has not received from the general contractor the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount retained by the awarding authority, the demand shall be by a sworn statement delivered to or sent by certified mail to the awarding authority, and a copy shall be delivered to or sent by certified mail to the general contractor at the same time. The demand shall contain a detailed breakdown of the balance due under the subcontract and also a statement of the status of the completion of the subcontract work shall be valid even if delivered or mailed prior to the seventieth day after which the subcontractor has substantially completed the subcontract work. Within ten days after the subcontractor has delivered or so mailed the demand to the awarding authority and delivered or so mailed a copy to the general contractor, the general contractor may reply to the demand. The reply shall be by a sworn statement delivered to or sent by certified mail to the awarding authority and a copy shall be delivered to or sent by certified mail to the subcontractor at the same time. The reply shall contain a detailed breakdown of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor and of the amount due for each claim made by the general contractor against the subcontractor.

(e) Within fifteen days after receipt of the demand by the awarding authority, but in no event prior to the seventieth day after substantial completion of the subcontract work, the awarding authority shall make direct payment to the subcontractor of the balance due under the subcontract including any amount due for extra labor and materials furnished to the general contractor, less any amount (i) retained by the awarding authority as the estimated cost of completing the incomplete or unsatisfactory items of work (ii) specified in any court proceedings barring such payment, or, (iii) if the reply shall not deduct from a direct payment any amount as provided in part (iii) if the reply is not sworn to, or for which the sworn reply does not contain the detailed breakdown required by subparagraph (d). The awarding authority shall make further direct payments to the subcontractor forthwith after the removal of the basis for deductions from direct payments made as provided in parts (i) and (ii) of this subparagraph.

(f) The awarding authority shall forthwith deposit the amount deducted from a direct payment as provided in part (iii) of subparagraph (e) in an interest-bearing joint account in the names of the general contractor and the subcontractor in a bank in Massachusetts selected by the awarding authority or agreed upon by the general contractor and the subcontractor and shall notify the general contractor and the subcontractor of the date of the deposit and the bank receiving the deposit. The bank shall pay the amount in the account, including accrued interest, as provided in an agreement between the general contractor and the subcontractor or as determined by decree of a court of competent jurisdiction.

(g) All direct payments and all deductions from demands for direct payments deposited in an interest-bearing account or accounts in a bank pursuant to subparagraph (f) shall be made out of amounts payable to the general contractor at the time of receipt of a demand for direct payment from a subcontractor and out of amounts which later become payable to the general contractor and in the order of receipt of such demands from subcontractors. All direct payments shall discharge the obligation of the awarding authority to the general contractor to the extent of such payment.

(h) The awarding authority shall deduct from payments to a general contractor amounts which, together with deposits in interest-bearing accounts pursuant to subparagraph (f), are sufficient to satisfy all unpaid balances of demands for direct payment received from subcontractors. All such amounts shall be earmarked for such direct payments, and the subcontractors shall have a right in such deductions prior to any claims against such amounts by creditors of the general contractor.

ARTICLE 11

Compensation for Work

1. Subject to any provisions in Paragraph 7, the price named in the proposal and accepted by the City shall be paid by the City and received by the Contractor as full compensation for furnishing materials and for use of tools, forms, machinery and other implements, and for labor in moving materials and executing all the work contemplated in this contract, also for loss or damage arising from delay however occasioned, or out of the nature of the work aforesaid or from the action of the elements, from floods, or from any unforeseen obstructions or difficulties which may be encountered in the prosecution of the same and for all risks of every description connected with the work and for well and faithfully completing the work in the proper manner and according to the plans and specifications and requirements of the Commissioner under them.

2. During the first week of each calendar month, the City Engineer shall cause all work done by the Contractor during the previous month to be measured and shall estimate the value thereof and, on or before the 10th of each month issue a certificate to the Commissioner of the measurements and the amount due the Contractor according to the terms of his contract.

3. The City shall pay the Contractor on approval of the Commissioner monthly on or before the 18th of each month for all work done during the preceding month according to the aforementioned certificate of the City Engineer, less 5 per cent of the amount of such work and less any amounts due the City by the Contractor.

4. Within ten days after the completion of the work as determined by the Commissioner, the City Engineer shall issue to the Commissioner a final certificate of the total amount of work done and the money due the Contractor therefor, crediting thereon the amounts of the previous payments. In making the final certificate, the City Engineer shall not be bound by any preceding certificate or estimate of the amount of work done or materials furnished.

Final Payment--Claims Against Contractor

5. At the expiration of 65 days after the completion of the work as determined by the Commissioner, the City shall, unless claims are made or notice of liability against the City is given, pay the Contractor, on the approval of the Commissioner, the percentages retained and the balance due the Contractor according to the aforementioned final certificate of the City Engineer less any indebtedness of the Contractor to the City. If a claim or claims are made, or notice of liability given, such amounts due the Contractor may be paid upon satisfaction of such claims or upon furnishing of indemnity to said City against all loss, cost, damage or expense by reason of such claims. In the event of no known claims or liens the City may, at its option, pay within 35 days.

6. The City, on making any payment after the completion of the work, shall be released from all claim or liability to the Contractor for anything done or used, or for any loss or injury sustained in carrying on the contract, or for any act, omission, neglect or mistake of the City or any person relating to or affecting the contract, except for the balance of any sum retained as aforesaid.

Extra Work

7. The Contractor shall be paid for any additions, or deductions as provided in Article 5, paragraph 1, and for extra labor done by, and for extra materials furnished by him in compliance with the written order only of the Commissioner, calling for work not similar in character to that covered by the items given in the proposal, and for which no price is set in the said written order, the direct (not including consequential) cost to the Contractor, as determined to be reasonable by the Commissioner, plus fifteen per cent of said costs as so determined in regard to labor only. For teams or trucks so furnished, no payment shall be made to the Contractor beyond the current local rate as determined by the Commissioner in each case. The direct cost of labor may include the cost of mechanics and laborers furnished and a reasonable proportion of the time of the foreman and timekeeper, but it shall in no case include any charge for the use of tools, for establishment charges or for time spent by the Contractor. The actual cost of insurance on extra pay rolls and of materials furnished for extra work, shall be paid without any addition. The labor and materials so ordered shall constitute a part of the work to be done under the contract; and all and singular the provisions of the contract shall apply to said labor and materials as if the same were specified therein. The Contractor shall have no claim for the above mentioned extra labor and materials unless he furnishes the details and bills therefor within one week after doing any such labor or furnishing any such materials.

8. No claim of the Contractor against the City under this contract shall be deemed valid unless such claim is presented to the Commissioner within ten days from the time when the Contractor first knows of, or has opportunity to know of, the acts and circumstances on which such claim is based.

9. A payment or payments to the Contractor, in cases where these provisions or any of them, are not complied with, shall not be construed as a waiver of said provisions or any part thereof.

Contract Made Subject to Appropriations

10. This contract is made subject to appropriation heretofore made and shall not be altered unless the Contractor, the sureties on the bond, if any, the officer making the contract and the Mayor shall in writing agree thereto.

ARTICLE 12
Responsibility for Work--Contractor's Responsibility

1. The Contractor has made his proposal from his own examinations and estimates, and shall not hold the City, its agents, or employees, responsible for or bound by, any schedule, estimate, sounding, boring, or any plan of any part of the work; shall, if any error in any plan, drawing, specification or direction relating to anything to be done under the contract come to his knowledge, report it at once to the Commissioner; shall not, except as the Commissioner shall authorize in writing, assign or sublet any part of the contract except for the supply of materials and plant, or of anything to be done thereunder; shall, subject to the provisions of the contract take all responsibility of, and bear all losses resulting to him in carrying on the contract, and shall assume the defense of, and hold the City, its agents and employees harmless from all suits and claims against them, or any of them, arising from the use of any invention, patent or patent right, material, labor or implement, by or from any act or omission or neglect of the Contractor, his Subcontractor, his agents or employees, in carrying on the contract, or for any liability of any nature arising under the contract. The Contractor shall be solely responsible and liable for, and shall fully protect and indemnify the City against all claims for damages to persons or property occasioned by or resulting from blasting or other methods or processes in the work of construction, whether such damages be attributable to negligence of the Contractor, his employees or his Subcontractor or otherwise.

ARTICLE 13
LIGHTS--GUARDS

1. The Contractor shall assume all responsibilities of the work and take all proper precautions to protect persons and property from injury and unnecessary interference; leave a reasonably unobstructed way along public and private places for pedestrians, teams, and vehicles, and for access to hydrants; provide proper walks over or around any obstruction made in a public or private place in carrying on the contract, and maintain from the beginning of twilight through the whole of every night, on or near the obstruction sufficient lights and guards to protect travelers from injury thereby, and if, after one notification from the Commissioner that said lights and guards are not sufficient, the Contractor has not placed additional lights and guards to the satisfaction of the Commissioner, the Commissioner shall have the right to take charge of that part of the work at the expense of the Contractor. While the work is suspended he shall keep all roadways and sidewalks in proper condition, and when the work is completed put the place and vicinity in proper condition and so leave them.

The Contractor shall provide proper means of access to property where the existing access is cut off by the Contractor and replace or put in good condition every conduit, catch-basin, tree, wall, fence, or other thing injured by the Contractor in carrying on the contract, unless the same has been permanently done away with, on approval of the Commissioner, as being necessary to the proper carrying on of the contract.

ARTICLE 14
Guaranty

1. Any settlement or other defect, or the failure of any part of the structure or the work due to defective materials or workmanship, that occurs within one year after the work is completed, is to be immediately repaired by the Contractor. In the event of any such settlement, defect, or failure causing liability to the City for damage to persons or property, the Contractor does by this clause agree to hold the City harmless and to assume the defense of any claims therefor.

2. Responsibility under this guaranty for the adequacy of the work does not relieve the Contractor of his obligation to comply with the terms of the contract and to conform to all the requirements of the plans and specifications, nor does it give him the right to deviate in any way from the details of design of the structure or the work.

ARTICLE 15
Defective Work and Materials

1. The inspection of the work shall not relieve the Contractor of any of his obligations to fulfill his contract as herein described, and defective work shall be made good and unsuitable materials may be rejected, notwithstanding that such work and materials have been previously overlooked by the Engineer and accepted or estimated for payment. If the work or materials, or any part thereof shall be found defective at any time before the final acceptance of the whole work, the Contractor shall forthwith make good such defect in a manner satisfactory to the Engineer, and if any material brought upon the ground for use in the work or selected for the same, shall be condemned by the Engineer as unsuitable or not in

conformity with the specifications, the Contractor shall forthwith remove such materials from the vicinity of the work. Nothing in this contract shall be construed as vesting in the Contractor any right of property in the materials used after they have been attached or affixed to the work or the soil, but all materials shall, upon being so attached or affixed, become the property of the City of Newton.

ARTICLE 16

Employment of Labor

1. The Contractor shall give preference in employment, first to citizens of Massachusetts, second, to other citizens of the United States; and shall allow all employees on said work to lodge, board and trade where they choose, and shall not obstruct any other person in doing work for the City; and shall conform to all labor laws of the Commonwealth; and no laborer or teamster, workman or mechanic working within this Commonwealth in the employ of the Contractor or Subcontractor or other person doing or contracting to do the whole or a part of the work contemplated by the Contractor shall be requested to, or required to, or work more than eight hours in any one calendar day. This contract is subject to all the laws of the Commonwealth, and ordinances of the City and if any clause thereof does not conform to such laws and ordinances, such clause shall be void and such laws and ordinances operated in lieu thereof.

ARTICLE 17

Laws and Regulations--Contractor to Comply with Law

1. The Contractor shall keep fully informed of all existing or future acts of the legislature, and of all municipal ordinances, prohibitions, rules and regulations in any manner affecting the conduct of the work, and of all orders or decrees of any body or tribunal having any jurisdiction or authority over the materials, times, places and actions of those employed in the work embraced in the contract. The Contractor shall at all times observe and comply with all existing and future acts, ordinances, prohibitions, rules, regulations, orders and decrees; and shall protect and indemnify the city and its employees against any and all claims arising from or based on any violation of such acts, ordinances, prohibitions, rules, regulations, orders or decrees, and against all violations of law by the Contractor or his agents or employees.

END OF SECTION

CITY OF NEWTON

WAGE RATE REQUIREMENTS

1. GENERAL

- A.** This section summarizes the requirements for the payment of wages to laborers and mechanics employed under the Contract.
- B.** Other duties and requirements of law which may not be specified in this section apply and are inherently a part of the Contract.

2. WAGE RATES

- A.** The rate per hour to be paid to mechanics, apprentices, teamsters, chauffeurs, and laborers employed on the Work shall not be less than the rate of wages in the attached "Minimum Wage Rates" as determined by the Commissioner of Labor and Industries. The schedule of prevailing wage rates will be updated annually for all public construction projects lasting longer than one (1) year. The contractor shall pay the prevailing wage rate set out in the applicable prevailing wage rate schedule. Increases in prevailing wage rates shall not be the basis for a change order.
- B.** Keep posted on the site a legible copy of said schedule. Keep on file the wage rates and classifications of labor employed on this Work in order that they may be available for inspection by the Owner, Administrator, or the Architect.
- C.** Apprentices employed pursuant to this determination of wage rates must be registered and approved by the State Apprenticeship Council wherever rates for journeymen or apprentices are not listed.
- D.** Pay reserve police officers employed on the Work the prevailing rate of wages paid to regular police officers as required by M.G.L. c149, Sec. 34B, as amended. Such police officers shall be covered by Workmen's Compensation Insurance and Employers Liability Insurance by the Contractor.
- E.** The Contractor and all subcontractors shall, on a weekly basis throughout the term of the contract, provide to the City of Newton certified payroll affidavits verifying compliance with M.G.L. c.149, Sec. 27, 27A and 27B.
- F.** The Contractor and all subcontractors shall provide a Statement of Compliance within 15 days of the completion of its portion of the work. This statement shall be submitted to the Owner on the form found elsewhere in this section.
- G.** The Contractor shall maintain accurate and complete records, including payroll records, during the Contract term and for three years thereafter.

END OF SECTION



DEVAL L. PATRICK
Governor
TIMOTHY P. MURRAY
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H



JOANNE F. GOLDSTEIN
Secretary
HEATHER E. ROWE
Director

Awarding Authority: City of Newton

Contract Number: 12-17

City/Town: NEWTON

Description of Work: Gordon Road Sewer and Drain Replacement Works

Job Location: Gordon Road

Classification	Effective Dates and Total Rates					
Construction						
(2 AXLE) DRIVER - EQUIPMENT	08/01/2011	\$46,120	12/01/2011	\$46,780	06/01/2012	\$47,080
	08/01/2012	\$47,430	12/01/2012	\$48,460		
(3 AXLE) DRIVER - EQUIPMENT	08/01/2011	\$46,190	12/01/2011	\$46,850	06/01/2012	\$47,150
	08/01/2012	\$47,500	12/01/2012	\$48,530		
(4 & 5 AXLE) DRIVER - EQUIPMENT	08/01/2011	\$46,310	12/01/2011	\$46,970	06/01/2012	\$47,270
	08/01/2012	\$47,620	12/01/2012	\$48,650		
ADS/SUBMERSIBLE PILOT	08/01/2011	\$107,800				
AIR TRACK OPERATOR	06/01/2011	\$50,850	12/01/2011	\$52,100		
ASBESTOS REMOVER - PIPE / MECH. EQUIPT.	12/01/2009	\$40,250				
ASPHALT RAKER	06/01/2011	\$50,350	12/01/2011	\$51,600		
ASPHALT/CONCRETE/CRUSHER PLANT-ON SITE	06/01/2011	\$61,290	12/01/2011	\$61,920	06/01/2012	\$62,490
	12/01/2012	\$63,110	06/01/2013	\$63,890	12/01/2013	\$64,670
BACKHOE/FRONT-END LOADER	06/01/2011	\$61,290	12/01/2011	\$61,920	06/01/2012	\$62,490
	12/01/2012	\$63,110	06/01/2013	\$63,890	12/01/2013	\$64,670
BARCO-TYPE JUMPING TAMPER	06/01/2011	\$50,350	12/01/2011	\$51,600		
BLOCK PAVER, RAMMER / CURB SETTER	06/01/2011	\$50,850	12/01/2011	\$52,100		
BOILER MAKER	01/01/2010	\$55,850				
APPRENTICE: BOILERMAKER - Local 29						
Ratio Step	1	2	3	4	5	6
1:5 %	65.00	65.00	70.00	75.00	80.00	85.00
Apprentice wages shall be no less than the following:						
Step 1542.66/2542.66/3544.54/4546.43/5548.31/6550.20/7552.08/8553.97						
BRICK/STONE/ARTIFICIAL MASONRY (INCL. MASONRY WATERPROOFING)	08/01/2011	\$73,000	02/01/2012	\$73,990		
APPRENTICE: BRICK/PLASTER/CEMENT MASON - Local 3 Newton						
Ratio Step	1	2	3	4	5	
1:5 %	50.00	60.00	70.00	80.00	90.00	
Apprentice wages shall be no less than the following:						
Step 1549.72/2554.38/3559.03/4563.69/5568.34						
BULLDOZER/GRADER/SCRAPER	06/01/2011	\$60,940	12/01/2011	\$61,560	06/01/2012	\$62,120
	12/01/2012	\$62,740	06/01/2013	\$63,510	12/01/2013	\$64,290
CAISSON & UNDERPINNING BOTTOM MAN	06/01/2011	\$51,250	12/01/2011	\$52,500		
CAISSON & UNDERPINNING LABORER	06/01/2011	\$50,100	12/01/2011	\$51,350		
CAISSON & UNDERPINNING TOP MAN	06/01/2011	\$50,100	12/01/2011	\$51,350		
CARBIDE CORE DRILL OPERATOR	06/01/2011	\$50,350	12/01/2011	\$51,600		
CARPENTER	09/01/2011	\$57,360	03/01/2012	\$58,480		

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27

Failure of the employer to pay "prevailing wage rates," which are the "total rates" listed above, on public works projects is a violation of M.G.L. ch. 149, sec. 27. Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at www.mass.gov/dols or at 617-626-6952. Employees not receiving such rates should report the violation to the Fair Labor Division of the Office of the Attorney General, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465.

Issue Date: 09/20/2011

Wage Request Number: 20110920-040

Page 1 of 11



DEVAL L. PATRICK
Governor
TIMOTHY P. MURRAY
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H



JOANNE F. GOLDSTEIN
Secretary
HEATHER E. ROWE
Director

Awarding Authority: City of Newton

Contract Number: 12-17

City/Town: NEWTON

Description of Work: Gordon Road Sewer and Drain Replacement Works

Job Location: Gordon Road

Classification		Effective Dates and Total Rates									
APPRENTICE: CARPENTER - Zone 2 Eastern MA											
Ratio	Step	1	2	3	4	5	6	7	8		
1:5	%	50.00	60.00	70.00	75.00	80.00	80.00	90.00	90.00		
Apprentice wages shall be no less than the following:											
Step 1\$27.40/2\$30.60/3\$43.04/4\$44.64/5\$47.81/6\$47.81/7\$52.59/8\$52.59											
CEMENT MASONRY/PLASTERING						08/01/2011	\$70.770	02/01/2012	\$71.540		
CHAIN SAW OPERATOR						06/01/2011	\$50.350	12/01/2011	\$51.600		
CLAM SHELLS/SLURRY BUCKETS/HEADING MACHINES						06/01/2011	\$62.290	12/01/2011	\$62.920	06/01/2012	\$63.490
						12/01/2012	\$64.110	06/01/2013	\$64.890	12/01/2013	\$65.670
COMPRESSOR OPERATOR						06/01/2011	\$49.910	12/01/2011	\$50.350	06/01/2012	\$50.740
						12/01/2012	\$51.190	06/01/2013	\$51.740	12/01/2013	\$52.290
DELEADER (BRIDGE)						07/01/2011	\$65.410	01/01/2012	\$66.410	07/01/2012	\$67.410
						01/01/2013	\$68.410				
APPRENTICE: PAINTER Local 35 - BRIDGES/TANKS											
Ratio	Step	1	2	3	4	5	6	7	8		
1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	90.00		
Apprentice wages shall be no less than the following:											
Step 1\$29.31/2\$34.57/3\$37.00/4\$39.43/5\$50.35/6\$52.75/7\$55.18/8\$60.05											
DEMO: ADZEMAN						06/01/2011	\$50.100	12/01/2011	\$51.350		
DEMO: BACKHOE/LOADER/HAMMER OPERATOR						06/01/2011	\$51.100	12/01/2011	\$52.350		
APPRENTICE: LABORER Demo Backhoe/Loader/Hammer Operator											
Ratio	Step	1	2	3	4						
1:5	%	60.00	70.00	80.00	90.00						
Apprentice wages shall be no less than the following:											
Step 1\$38.28/2\$41.49/3\$44.69/4\$47.90											
DEMO: BURNERS						06/01/2011	\$50.850	12/01/2011	\$52.100		
APPRENTICE: LABORER Demo Burners											
Ratio	Step	1	2	3	4						
1:5	%	60.00	70.00	80.00	90.00						
Apprentice Wages shall be no less than the following:											
Step 1\$38.13/2\$41.31/3\$44.49/4\$47.67											
DEMO: CONCRETE CUTTER/SAWYER						06/01/2011	\$51.100	12/01/2011	\$52.350		
DEMO: JACKHAMMER OPERATOR						06/01/2011	\$50.850	12/01/2011	\$52.100		
DEMO: WRECKING LABORER						06/01/2011	\$50.100	12/01/2011	\$51.350		

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27

Failure of the employer to pay "prevailing wage rates," which are the "total rates" listed above, on public works projects is a violation of M.G.L. ch. 149, sec. 27. Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at www.mass.gov/dols or at 617-626-6952. Employees not receiving such rates should report the violation to the Fair Labor Division of the Office of the Attorney General, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465.

Issue Date: 09/20/2011

Wage Request Number: 20110920-040

Page 2 of 11



DEVAL L. PATRICK
Governor
TIMOTHY P. MURRAY
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H



JOANNE F. GOLDSTEIN
Secretary
HEATHER E. ROWE
Director

Awarding Authority: City of Newton

Contract Number: 12-17

City/Town: NEWTON

Description of Work: Gordon Road Sewer and Drain Replacement Works

Job Location: Gordon Road

Classification		Effective Dates and Total Rates									
APPRENTICE: LABORER Demo Wrecking Laborer											
Ratio	Step	1	2	3	4						
1:5	%	60.00	70.00	80.00	90.00						
Apprentice wages shall be no less than the following:											
Step 1\$37.68/2\$40.79/3\$43.89/4\$47.00											
DIRECTIONAL DRILL MACHINE OPERATOR						06/01/2011	\$60.940	12/01/2011	\$61.560	06/01/2012	\$62.120
						12/01/2012	\$62.740	06/01/2013	\$63.510	12/01/2013	\$64.290
DIVER						08/01/2011	\$80.270				
DIVER TENDER						08/01/2011	\$65.320				
DIVER TENDER (EFFLUENT)						08/01/2011	\$85.380				
DIVER/SLURRY (EFFLUENT)						08/01/2011	\$107.800				
ELECTRICIAN						09/01/2011	\$68.750	03/01/2012	\$69.240	09/01/2012	\$69.940
						03/01/2013	\$70.680	09/01/2013	\$71.380	03/01/2014	\$72.120
						09/01/2014	\$72.810	03/01/2015	\$73.550	09/01/2015	\$74.540
						03/01/2016	\$75.520				
APPRENTICE: ELECTRICIAN - Local 103											
Ratio	Step	1	2	3	4	5	6	7	8	9	10
2:3***	%	40.00	40.00	45.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00
Apprentice wages shall be no less than the following Steps:											
App Prior 1/1/03; 30/35/40/45/50/55/65/70/75/80											
1\$37.56/2\$37.56/3\$42.11/4\$42.11/5\$44.53/6\$46.95/7\$49.36/8\$51.80/9\$54.21/10\$56.64											
ELEVATOR CONSTRUCTOR						01/01/2011	\$66.690	01/01/2012	\$68.190		
APPRENTICE: ELEVATOR CONSTRUCTOR - Local 4											
Ratio	Step	1	2	3	4	5					
1:1	%	50.00	55.00	65.00	70.00	80.00					
Apprentice rates shall be no less than the following:											
Steps 1-2 are 6 mos.; Steps 3-5 are 1 year											
Step 1\$34.26/2\$43.76/3\$48.86/4\$51.41/5\$56.50											
ELEVATOR CONSTRUCTOR HELPER						01/01/2011	\$52.830	01/01/2012	\$54.330		
FENCE & GUARD RAIL ERECTOR						06/01/2011	\$50.350	12/01/2011	\$51.600		
FIELD ENG.INST.PERSON-BLDG,SITE,HVY/HWY						05/01/2011	\$59.380				
FIELD ENG.PARTY CHIEF-BLDG,SITE,HVY/HWY						05/01/2011	\$60.770				
FIELD ENG.ROD PERSON-BLDG,SITE,HVY/HWY						05/01/2011	\$42.930				
FIRE ALARM INSTALLER						09/01/2011	\$68.750	03/01/2012	\$69.240	09/01/2012	\$69.940
						03/01/2013	\$70.680	09/01/2013	\$71.380	03/01/2014	\$72.120
						09/01/2014	\$72.810	03/01/2015	\$73.550	09/01/2015	\$74.540
						03/01/2016	\$75.520				

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27

Failure of the employer to pay "prevailing wage rates," which are the "total rates" listed above, on public works projects is a violation of M.G.L. ch. 149, sec. 27. Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at www.mass.gov/dols or at 617-626-6952. Employees not receiving such rates should report the violation to the Fair Labor Division of the Office of the Attorney General, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465.

Issue Date: 09/20/2011

Wage Request Number: 20110920-040

Page 3 of 11



DEVAL L. PATRICK
Governor
TIMOTHY P. MURRAY
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H



JOANNE F. GOLDSTEIN
Secretary
HEATHER E. ROWE
Director

Awarding Authority: City of Newton

Contract Number: 12-17

City/Town: NEWTON

Description of Work: Gordon Road Sewer and Drain Replacement Works

Job Location: Gordon Road		Effective Dates and Total Rates							
Classification									
FIRE ALARM REPAIR / MAINTENANCE / COMMISSIONING		09/01/2011	\$56,640	03/01/2012	\$57,010	09/01/2012	\$57,540		
		03/01/2013	\$58,090	09/01/2013	\$58,620	03/01/2014	\$59,180		
		09/01/2014	\$59,690	03/01/2015	\$60,240	09/01/2015	\$60,980		
		03/01/2016	\$61,720						
FIREMAN (ASST. ENGINEER)		06/01/2011	\$55,100	12/01/2011	\$55,630	06/01/2012	\$56,100		
		12/01/2012	\$56,630	06/01/2013	\$57,280	12/01/2013	\$57,940		
FLAGGER & SIGNALER		06/01/2011	\$39,550	12/01/2011	\$39,550				
FLOORCOVERER		09/01/2011	\$62,360	03/01/2012	\$63,610				
APPRENTICE: FLOORCOVERER - Local 2168 Zone 1									
Ratio	Step	1	2	3	4	5	6	7	8
1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00
Apprentice rates shall be no less than the following:				Steps are 750 hrs.					
Step 1\$29.57/2\$31.36/3\$42.61/4\$44.41/5\$48.00/6\$49.79/7\$53.38/8\$55.18									
FORK LIFT/CHERRY PICKER		06/01/2011	\$61,290	12/01/2011	\$61,920	06/01/2012	\$62,490		
		12/01/2012	\$63,110	06/01/2013	\$63,890	12/01/2013	\$64,670		
GENERATOR/LIGHTING PLANT/HEATERS		06/01/2011	\$49,910	12/01/2011	\$50,350	06/01/2012	\$50,740		
		12/01/2012	\$51,190	06/01/2013	\$51,740	12/01/2013	\$52,290		
GLAZIER (GLASS PLANK/AIR BARRIER/INTERIOR SYSTEMS)		07/01/2011	\$54,910	01/01/2012	\$55,910	07/01/2012	\$56,910		
		01/01/2013	\$57,910						
APPRENTICE: GLAZIER - Local 35 Zone 2									
Ratio	Step	1	2	3	4	5	6	7	8
1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	90.00
Apprentice wages shall be no less than the following:				Steps are 750 hrs.					
Step 1\$24.06/2\$28.79/3\$30.70/4\$32.60/5\$43.00/6\$44.87/7\$46.78/8\$50.60									
HOISTING ENGINEER/CRANES/GRADALLS		06/01/2011	\$61,290	12/01/2011	\$61,920	06/01/2012	\$62,490		
		12/01/2012	\$63,110	06/01/2013	\$63,890	12/01/2013	\$64,670		
APPRENTICE: HOIST/PORT. ENG.- Local 4									
Ratio	Step	1	2	3	4	5	6	7	8
1:6	%	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00
Apprentice wages shall be no less than the following:									
Step 1\$31.50/2\$45.65/3\$47.61/4\$49.56/5\$51.52/6\$53.47/7\$55.43/8\$57.38									
HVAC (DUCTWORK)		08/01/2011	\$66,740	02/01/2012	\$67,990	08/01/2012	\$69,240		
		02/01/2013	\$70,490						
HVAC (ELECTRICAL CONTROLS)		09/01/2011	\$68,750	03/01/2012	\$69,240	09/01/2012	\$69,940		
		03/01/2013	\$70,680	09/01/2013	\$71,380	03/01/2014	\$72,120		
		09/01/2014	\$72,810	03/01/2015	\$73,550	09/01/2015	\$74,540		
		03/01/2016	\$75,520						

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27
Failure of the employer to pay "prevailing wage rates," which are the "total rates" listed above, on public works projects is a violation
of M.G.L. ch. 149, sec. 27. Contractors with questions about the wage rates or classifications included on the wage schedule have an
affirmative obligation to inquire with DLS at www.mass.gov/dols or at 617-626-6952. Employees not receiving such rates should
report the violation to the Fair Labor Division of the Office of the Attorney General, 100 Cambridge Street, Boston, MA 02108;
Tel: 617-727-3465.

Issue Date: 09/20/2011

Wage Request Number: 20110920-040

Page 4 of 11



DEVAL L. PATRICK
Governor
TIMOTHY P. MURRAY
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H



JOANNE F. GOLDSTEIN
Secretary
HEATHER E. ROWE
Director

Awarding Authority: City of Newton

Contract Number: 12-17

City/Town: NEWTON

Description of Work: Gordon Road Sewer and Drain Replacement Works

Job Location: Gordon Road

Classification	Effective Dates and Total Rates					
HVAC (TESTING AND BALANCING - AIR)	08/01/2011	\$66.740	02/01/2012	\$67.990	08/01/2012	\$69.240
	02/01/2013	\$70.490				
HVAC (TESTING AND BALANCING -WATER)	09/01/2011	\$69.230				
HVAC MECHANIC	09/01/2011	\$69.230				
HYDRAULIC DRILLS	06/01/2011	\$50.850	12/01/2011	\$52.100		
INSULATOR (PIPES & TANKS)	09/01/2010	\$61.660				
APPRENTICE: ASBESTOS INSULATOR (Pipes & Tanks) - Local 6 Boston						
Ratio	Step	1	2	3	4	
1:4	%	50.00	60.00	70.00	80.00	
Apprentice wages shall be no less than the following:			Steps are 1 year			
Step		1\$37.34/2\$42.20/3\$47.07/4\$51.93				
IRONWORKER/WELDER	09/16/2011	\$62.930	03/16/2012	\$63.930	09/16/2012	\$64.930
	03/16/2013	\$66.180				
APPRENTICE: IRONWORKER - Local 7 Boston						
Ratio	Step	1	2	3	4	5 6
**	%	60.00	70.00	75.00	80.00	85.00 90.00
Apprentice wages shall be no less than the following:			** Structural 1:6; Ornamental 1:4			
Step		1\$48.02/2\$51.75/3\$53.61/4\$55.47/5\$57.34/6\$59.20				
JACKHAMMER & PAVING BREAKER OPERATOR	06/01/2011	\$50.350	12/01/2011	\$51.600		
LABORER	06/01/2011	\$50.100	12/01/2011	\$51.350		
APPRENTICE: LABORER - Zone 1						
Ratio	Step	1	2	3	4	
1:5	%	60.00	70.00	80.00	90.00	
Apprentice wages shall be no less than the following:						
Step		1\$37.68/2\$40.79/3\$43.89/4\$47.00				
LABORER: CARPENTER TENDER	06/01/2011	\$50.100	12/01/2011	\$51.350		
LABORER: CEMENT FINISHER TENDER	06/01/2011	\$50.100	12/01/2011	\$51.350		
LABORER: HAZARDOUS WASTE/ASBESTOS REMOVER	06/01/2011	\$50.100	12/01/2011	\$51.350		
LABORER: MASON TENDER	06/01/2011	\$50.350	12/01/2011	\$51.600		
LABORER: MULTI-TRADE TENDER	06/01/2011	\$50.100	12/01/2011	\$51.350		
LABORER: TREE REMOVER	06/01/2011	\$50.100	12/01/2011	\$51.350		
This classification applies to the wholesale removal of standing trees including all associated trimming of branches and limbs, and applies to the removal of branches at locations not on or around utility lines.						
LASER BEAM OPERATOR	06/01/2011	\$50.350	12/01/2011	\$51.600		
MARBLE & TILE FINISHERS	08/01/2011	\$60.950	02/01/2012	\$61.740		

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27

Failure of the employer to pay "prevailing wage rates," which are the "total rates" listed above, on public works projects is a violation of M.G.L. ch. 149, sec. 27. Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at www.mass.gov/dols or at 617-626-6952. Employees not receiving such rates should report the violation to the Fair Labor Division of the Office of the Attorney General, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465.

Issue Date: 09/20/2011

Wage Request Number: 20110920-040

Page 5 of 11



DEVAL L. PATRICK
Governor
TIMOTHY P. MURRAY
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H



JOANNE F. GOLDSTEIN
Secretary
HEATHER E. ROWE
Director

Awarding Authority: City of Newton

Contract Number: 12-17

City/Town: NEWTON

Description of Work: Gordon Road Sewer and Drain Replacement Works

Job Location: Gordon Road

Classification		Effective Dates and Total Rates									
APPRENTICE: MARBLE & TILE FINISHER - Local 3 Marble & Tile											
Ratio	Step	1	2	3	4	5					
1:3	%	50.00	60.00	70.00	80.00	90.00					
Apprentice wages shall be no less than the following:						Steps are 800 hrs.					
Step 1\$43.19/2\$46.74/3\$50.29/4\$53.85/5\$57.40											
MARBLE MASONS, TILELAYERS & TERRAZZO MECH						08/01/2011	\$73.040	02/01/2012	\$74.030		
APPRENTICE: MARBLE-TILE-TERRAZZO MECHANIC - Local 3 Marble & Tile											
Ratio	Step	1	2	3	4	5					
1:3	%	50.00	60.00	70.00	80.00	90.00					
Apprentice wages shall be no less than the following:											
Step 1\$49.74/2\$54.40/3\$59.06/4\$63.72/5\$68.38											
MECH. SWEEPER OPERATOR (NON-CONSTRUCTION)						07/01/2011	\$30.290				
MECH. SWEEPER OPERATOR (ON CONST. SITES)						06/01/2011	\$60.940	12/01/2011	\$61.560	06/01/2012	\$62.120
						12/01/2012	\$62.740	06/01/2013	\$63.510	12/01/2013	\$64.290
MECHANICS MAINTENANCE						06/01/2011	\$60.940	12/01/2011	\$61.560	06/01/2012	\$62.120
						12/01/2012	\$62.740	06/01/2013	\$63.510	12/01/2013	\$64.290
MILLWRIGHT (Zone 1)						04/01/2011	\$57.850				
APPRENTICE: MILLWRIGHT - Local 1121 Zone 1											
Ratio	Step	1	2	3	4	5	6	7	8		
1:5	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00		
Apprentice wages shall be no less than the following:											
Step 1\$37.10/2\$38.77/3\$42.04/4\$43.72/5\$46.19/6\$47.87/7\$50.35/8\$52.02											
MORTAR MIXER						06/01/2011	\$50.350	12/01/2011	\$51.600		
OILER (OTHER THAN TRUCK CRANES, GRADALLS)						06/01/2011	\$43.340	12/01/2011	\$43.680	06/01/2012	\$43.960
						12/01/2012	\$44.300	06/01/2013	\$44.720	12/01/2013	\$45.140
OILER (TRUCK CRANES, GRADALLS)						06/01/2011	\$46.520	12/01/2011	\$46.910	06/01/2012	\$47.250
						12/01/2012	\$47.640	06/01/2013	\$48.120	12/01/2013	\$48.610
OTHER POWER DRIVEN EQUIPMENT - CLASS II						06/01/2011	\$60.940	12/01/2011	\$61.560	06/01/2012	\$62.120
						12/01/2012	\$62.740	06/01/2013	\$63.510	12/01/2013	\$64.290
PAINTER (BRIDGES/TANKS)						07/01/2011	\$65.410	01/01/2012	\$66.410	07/01/2012	\$67.410
						01/01/2013	\$68.410				
APPRENTICE: PAINTER Local 35 - BRIDGES/TANKS											
Ratio	Step	1	2	3	4	5	6	7	8		
1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	90.00		
Apprentice wages shall be no less than the following:						Steps are 750 hrs.					
Step 1\$29.31/2\$34.57/3\$37.00/4\$39.43/5\$50.35/6\$52.75/7\$55.18/8\$60.05											

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27

Failure of the employer to pay "prevailing wage rates," which are the "total rates" listed above, on public works projects is a violation of M.G.L. ch. 149, sec. 27. Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at www.mass.gov/dols or at 617-626-6952. Employees not receiving such rates should report the violation to the Fair Labor Division of the Office of the Attorney General, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465.

Issue Date: 09/20/2011

Wage Request Number: 20110920-040

Page 6 of 11



DEVAL L. PATRICK
Governor
TIMOTHY P. MURRAY
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H



JOANNE F. GOLDSTEIN
Secretary
HEATHER E. ROWE
Director

Awarding Authority: City of Newton

Contract Number: 12-17

City/Town: NEWTON

Description of Work: Gordon Road Sewer and Drain Replacement Works

Job Location: Gordon Road

Classification	Effective Dates and Total Rates								
PAINTER (SPRAY OR SANDBLAST, NEW) *	07/01/2011	\$56.310	01/01/2012	\$57.310	07/01/2012	\$58.310			
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.	01/01/2013	\$59.310							
APPRENTICE: PAINTER Local 35 Zone 2 - Spray/Sandblast - New									
Ratio	Step	1	2	3	4	5	6	7	8
1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	90.00
Apprentice wages shall be no less than the following:									
Step 1\$24.76/2\$29.56/3\$31.54/4\$33.51/5\$43.98/6\$45.92/7\$47.90/8\$51.86									
PAINTER (SPRAY OR SANDBLAST, REPAINT)	07/01/2011	\$54.370	01/01/2012	\$55.370	07/01/2012	\$56.370			
	01/01/2013	\$57.370							
APPRENTICE: PAINTER Local 35 Zone 2 - Spray/Sandblast - Repaint									
Ratio	Step	1	2	3	4	5	6	7	8
1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	90.00
Apprentice wages shall be no less than the following:									
Step 1\$23.79/2\$28.49/3\$30.37/4\$32.25/5\$42.62/6\$44.47/7\$46.35/8\$50.11									
PAINTER (TRAFFIC MARKINGS)	06/01/2011	\$50.100	12/01/2011	\$51.350					
PAINTER / TAPER (BRUSH, NEW) *	07/01/2011	\$54.910	01/01/2012	\$55.910	07/01/2012	\$56.910			
* If 30% or more of surfaces to be painted are new construction, NEW paint rate shall be used.	01/01/2013	\$57.910							
APPRENTICE: PAINTER - Local 35 Zone 2 - BRUSH NEW									
Ratio	Step	1	2	3	4	5	6	7	8
1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	90.00
Apprentice wages shall be no less than the following:							Steps are 750 hrs.		
Step 1\$24.06/2\$28.79/3\$30.70/4\$32.60/5\$43.00/6\$44.87/7\$46.78/8\$50.60									
PAINTER / TAPER (BRUSH, REPAINT)	07/01/2011	\$52.970	01/01/2012	\$53.970	07/01/2012	\$54.970			
	01/01/2013	\$55.970							
APPRENTICE: PAINTER Local 35 Zone 2 - BRUSH REPAINT									
Ratio	Step	1	2	3	4	5	6	7	8
1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	90.00
Apprentice wages shall be no less than the following:							Steps are 750 hrs.		
Step 1\$23.09/2\$27.72/3\$29.53/4\$31.34/5\$41.64/6\$43.42/7\$45.23/8\$48.85									
PANEL & PICKUP TRUCKS DRIVER	08/01/2011	\$45.950	12/01/2011	\$46.610	06/01/2012	\$46.910			
	08/01/2012	\$47.260	12/01/2012	\$48.290					
PIER AND DOCK CONSTRUCTOR (UNDERPINNING AND DECK)	08/01/2011	\$65.320							
PILE DRIVER	08/01/2011	\$65.320							

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27

Failure of the employer to pay "prevailing wage rates," which are the "total rates" listed above, on public works projects is a violation of M.G.L. ch. 149, sec. 27. Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at www.mass.gov/dols or at 617-626-6952. Employees not receiving such rates should report the violation to the Fair Labor Division of the Office of the Attorney General, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465.

Issue Date: 09/20/2011

Wage Request Number: 20110920-040

Page 7 of 11



DEVAL L. PATRICK
Governor
TIMOTHY P. MURRAY
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H



JOANNE F. GOLDSTEIN
Secretary
HEATHER E. ROWE
Director

Awarding Authority: City of Newton

Contract Number: 12-17

City/Town: NEWTON

Description of Work: Gordon Road Sewer and Drain Replacement Works

Job Location: Gordon Road

Classification **Effective Dates and Total Rates**

APPRENTICE: PILE DRIVER - Local 56 Zone 1									
Ratio	Step	1	2	3	4	5	6	7	8
1:3	%	60.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00
Apprentice wages shall be no less than the following:									
Step 1\$49.27/2\$51.28/3\$53.28/4\$55.29/5\$57.30/6\$59.30/7\$61.31/8\$63.31									
PIPEFITTER & STEAMFITTER						09/01/2011	\$69.230		
APPRENTICE: PIPEFITTER - Local 537									
Ratio	Step	1	2	3	4	5			
**	%	40.00	45.00	60.00	70.00	80.00			
Apprentice Rates-Step1\$33.69/2\$43.88/3\$50.79/4\$55.40/5\$60.01						** 1:3; 3:15; 1:10 thereafter / Steps are 1 yr.			
Refrig/AC Mechanic **1:1;2:2;4:3;6:4;8:5;10:6;12;7;14;8;17;9;20;10;23(Max)									
PIPELAYER						06/01/2011	\$50.350	12/01/2011	\$51.600
PLUMBERS & GASFITTERS						09/01/2011	\$68.620	03/01/2012	\$69.420
						03/01/2013	\$71.920	09/01/2012	\$70.670
APPRENTICE: PLUMBER - Local 12									
Ratio	Step	1	2	3	4	5			
**	%	35.00	40.00	55.00	65.00	75.00			
Apprentice wages shall be no less than the following:						** 1:2; 2:6; 3:10; 4:14; 5:19/Steps are 1 yr			
Step 1\$30.39/2\$33.33/3\$42.16/4\$48.04/ 4w/ile\$51.07/									
PNEUMATIC CONTROLS (TEMP.)						09/01/2011	\$69.230		
PNEUMATIC DRILL/TOOL OPERATOR						06/01/2011	\$50.350	12/01/2011	\$51.600
POWDERMAN & BLASTER						06/01/2011	\$51.100	12/01/2011	\$52.350
POWER SHOVEL/DERRICK/TRENCHING MACHINE						06/01/2011	\$61.290	12/01/2011	\$61.920
						12/01/2012	\$63.110	06/01/2013	\$63.890
								12/01/2013	\$64.670
PUMP OPERATOR (CONCRETE)						06/01/2011	\$61.290	12/01/2011	\$61.920
						12/01/2012	\$63.110	06/01/2013	\$63.890
								12/01/2013	\$64.670
PUMP OPERATOR (DEWATERING, OTHER)						06/01/2011	\$49.910	12/01/2011	\$50.350
						12/01/2012	\$51.190	06/01/2013	\$51.740
								12/01/2013	\$52.290
READY-MIX CONCRETE DRIVER						05/01/2011	\$41.690		
RECLAIMERS						06/01/2011	\$60.940	12/01/2011	\$61.560
						12/01/2012	\$62.740	06/01/2013	\$63.510
								12/01/2013	\$64.290
RESIDENTIAL WOOD FRAME (All Other Work)						04/01/2011	\$48.420		
RESIDENTIAL WOOD FRAME CARPENTER **						05/01/2011	\$36.810		
** The Residential Wood Frame Carpenter classification applies only to the construction of new, wood frame residences that do not exceed four stories including the basement.									
As of 9/1/09 Carpentry work on wood-frame residential WEATHERIZATION projects shall be paid the RESIDENTIAL WOOD FRAME CARPENTER rate.									

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27

Failure of the employer to pay "prevailing wage rates," which are the "total rates" listed above, on public works projects is a violation of M.G.L. ch. 149, sec. 27. Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at www.mass.gov/dols or at 617-626-6952. Employees not receiving such rates should report the violation to the Fair Labor Division of the Office of the Attorney General, 100 Cambridge Street, Boston, MA 02108; Tel: 617-727-3465.

Issue Date: 09/20/2011

Wage Request Number: 20110920-040

Page 8 of 11



DEVAL L. PATRICK
Governor
TIMOTHY P. MURRAY
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H



JOANNE F. GOLDSTEIN
Secretary
HEATHER E. ROWE
Director

Awarding Authority: City of Newton

Contract Number: 12-17

City/Town: NEWTON

Description of Work: Gordon Road Sewer and Drain Replacement Works

Job Location: Gordon Road

Classification		Effective Dates and Total Rates									
APPRENTICE: CARPENTER (Residential Wood Frame) - Zone 2											
Ratio	Step	1	2	3	4	5	6	7	8		
1:5	%	60.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00		
Apprentice wages shall be no less than the following:											
Step 1\$20.88/2527.11/3528.33/4529.54/5530.75/6531.96/7533.17/8534.39											
RIDE-ON MOTORIZED BUGGY OPERATOR						06/01/2011	\$50.350	12/01/2011	\$51.600		
ROLLER/SPREADER/MULCHING MACHINE						06/01/2011	\$60.940	12/01/2011	\$61.560	06/01/2012	\$62.120
						12/01/2012	\$62.740	06/01/2013	\$63.510	12/01/2013	\$64.290
ROOFER (Inc.Roofor Waterproofing &Roofor Dampproofg)						08/01/2011	\$55.860	02/01/2012	\$56.860	08/01/2012	\$57.860
						02/01/2013	\$58.860				
APPRENTICE: ROOFER - Local 33											
Ratio	Step	1	2	3	4	5					
**	%	50.00	60.00	65.00	75.00	85.00					
** 1:5, 2:6-10, the 1:10; Reroofing: 1:4, then 1:1						Step 1 is 2000 hrs.; Steps 2-5 are 1000 hrs.					
Apprentice rates no less than: Step 1\$31.21/2541.64/3543.41/4546.97/5550.53											
ROOFER SLATE / TILE / PRECAST CONCRETE						08/01/2011	\$56.110	02/01/2012	\$57.110	08/01/2012	\$58.110
						02/01/2013	\$59.110				
APPRENTICE: ROOFER (Slate/Tile/Precast Concrete) - Local 33											
Ratio	Step	1	2	3	4	5					
**	%	50.00	60.00	65.00	75.00	85.00					
Apprentices wages shall be paid no less than the following:											
Step 1\$31.34/2541.79/3543.58/4547.16/5550.74											
SHEETMETAL WORKER						08/01/2011	\$66.740	02/01/2012	\$67.990	08/01/2012	\$69.240
						02/01/2013	\$70.490				
APPRENTICE: SHEET METAL WORKER - Local 17-A											
Ratio	Step	1	2	3	4	5	6	7			
1:4	%	40.00	45.00	50.00	60.00	65.00	75.00	85.00			
Apprentice wages shall be no less than the following:						Steps 1-3 are 1 year; Steps 4-7 are 6 mos.					
Step 1\$29.49/2535.19/3538.16/4543.32/5546.03/6551.45/7556.37											
SIGN ERECTOR						06/01/2009	\$37.780				
APPRENTICE: SIGN ERECTOR - Local 35 Zone 2											
Ratio	Step	1	2	3	4	5	6	7	8	9	
1:1	%	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	
Apprentice wages shall be no less than the following:											
Step 1\$19.48/2523.12/3524.36/4525.60/5530.34/6531.58/7532.82/8534.06/9535.30											
SPECIALIZED EARTH MOVING EQUIP < 35 TONS						08/01/2011	\$46.410	12/01/2011	\$47.070	06/01/2012	\$47.370
						08/01/2012	\$47.720	12/01/2012	\$48.750		

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27

Failure of the employer to pay "prevailing wage rates," which are the "total rates" listed above, on public works projects is a violation of M.G.L. ch. 149, sec. 27. Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at www.mass.gov/dols or at 617-626-6952. Employees not receiving such rates should report the violation to the Fair Labor Division of the Office of the Attorney General, 100 Cambridge Street, Boston, MA 02108;

Tel: 617-727-3465.

Issue Date: 09/20/2011

Wage Request Number: 20110920-040

Page 9 of 11



DEVAL L. PATRICK
Governor
TIMOTHY P. MURRAY
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H



JOANNE F. GOLDSTEIN
Secretary
HEATHER E. ROWE
Director

Awarding Authority: City of Newton

Contract Number: 12-17

City/Town: NEWTON

Description of Work: Gordon Road Sewer and Drain Replacement Works

Job Location: Gordon Road

Classification	Effective Dates and Total Rates					
SPECIALIZED EARTH MOVING EQUIP > 35 TONS	08/01/2011	\$46,700	12/01/2011	\$47,360	06/01/2012	\$47,660
	08/01/2012	\$48,010	12/01/2012	\$49,040		
SPRINKLER FITTER	09/01/2011	\$71,350	01/01/2012	\$71,500	03/01/2012	\$72,250
	09/01/2012	\$73,250	01/01/2013	\$73,400	03/01/2013	\$74,400
APPRENTICE: SPRINKLER FITTER - Local 550						
Ratio	Step	1	2	3	4	5
1:1	%	40.00	45.00	50.00	55.00	60.00
Apprentice wages shall be no less than the following steps:						
1536.52/2539.11/3541.70/4544.29/5546.88/6549.47/7552.06/8554.65/9557.24/10559.83						
STEAM BOILER OPERATOR	06/01/2011	\$60,940	12/01/2011	\$61,560	06/01/2012	\$62,120
	12/01/2012	\$62,740	06/01/2013	\$63,510	12/01/2013	\$64,290
TAMPERS, SELF-PROPELLED OR TRACTOR DRAWN	06/01/2011	\$60,940	12/01/2011	\$61,560	06/01/2012	\$62,120
	12/01/2012	\$62,740	06/01/2013	\$63,510	12/01/2013	\$64,290
TELECOMMUNICATION TECHNICIAN	09/01/2011	\$56,640	03/01/2012	\$57,010	09/01/2012	\$57,540
	03/01/2013	\$58,090	09/01/2013	\$58,620	03/01/2014	\$59,180
	09/01/2014	\$59,690	03/01/2015	\$60,240	09/01/2015	\$60,980
	03/01/2016	\$61,720				
APPRENTICE: TELECOMMUNICATION TECHNICIAN - Local 103						
Ratio	Step	1	2	3	4	5
1:1	%	40.00	40.00	45.00	45.00	50.00
Apprentice wages shall be no less than the following:						
1537.23/2537.23/3538.84/4538.84/5540.46/6542.08/7543.70/8545.31/9546.93/10548.56						
TERRAZZO FINISHERS	08/01/2011	\$71,940	02/01/2012	\$72,930		
APPRENTICE: TERRAZZO FINISHER - Local 3 Marble & Tile						
Ratio	Step	1	2	3	4	5
1:3	%	50.00	60.00	70.00	80.00	90.00
Apprentice wages shall be no less than the following:						
Step 1549.19/2553.74/3558.29/4562.84/5567.39						
Steps are 800 hrs.						
TEST BORING DRILLER	06/01/2011	\$51,500	12/01/2011	\$52,750		
APPRENTICE: TEST BORING DRILLER (Laborers Foundation & Marine)						
Ratio	Step	1	2	3	4	
1:3	%	60.00	70.00	80.00	90.00	
Apprentice wages shall be no less than the following:						
Step 1538.58/2541.81/3545.04/4548.27						
TEST BORING DRILLER HELPER	06/01/2011	\$50,220	12/01/2011	\$51,470		
TEST BORING LABORER	06/01/2011	\$50,100	12/01/2011	\$51,350		

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27
Failure of the employer to pay "prevailing wage rates," which are the "total rates" listed above, on public works projects is a violation
of M.G.L. ch. 149, sec. 27. Contractors with questions about the wage rates or classifications included on the wage schedule have an
affirmative obligation to inquire with DLS at www.mass.gov/dols or at 617-626-6952. Employees not receiving such rates should
report the violation to the Fair Labor Division of the Office of the Attorney General, 100 Cambridge Street, Boston, MA 02108;
Tel: 617-727-3465.

Issue Date: 09/20/2011

Wage Request Number: 20110920-040

Page 10 of 11



DEVAL L. PATRICK
Governor
TIMOTHY P. MURRAY
Lt. Governor

THE COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF LABOR AND WORKFORCE DEVELOPMENT
DEPARTMENT OF LABOR STANDARDS

Prevailing Wage Rates

As determined by the Director under the provisions of the
Massachusetts General Laws, Chapter 149, Sections 26 to 27H



JOANNE F. GOLDSTEIN
Secretary
HEATHER E. ROWE
Director

Awarding Authority: City of Newton

Contract Number: 12-17

City/Town: NEWTON

Description of Work: Gordon Road Sewer and Drain Replacement Works

Job Location: Gordon Road

Classification

Effective Dates and Total Rates

APPRENTICE: TEST BORING LABORER (Laborers Foundation & Marine)

Ratio	Step	1	2	3	4
1:3	%	60.00	70.00	80.00	90.00

Apprentice wages shall be no less than the following:

Step 1 \$37.74/2 \$40.83/3 \$43.92/4 \$47.01

TRACTORS/PORTABLE STEAM GENERATORS	06/01/2011	\$60.940	12/01/2011	\$61.560	06/01/2012	\$62.120
	12/01/2012	\$62.740	06/01/2013	\$63.510	12/01/2013	\$64.290
TRAILERS FOR EARTH MOVING EQUIPMENT	08/01/2011	\$46.990	12/01/2011	\$47.650	06/01/2012	\$47.950
	08/01/2012	\$48.300	12/01/2012	\$49.490		
TUNNEL WORK - COMPRESSED AIR	06/01/2011	\$62.930	12/01/2011	\$64.180		
TUNNEL WORK - COMPRESSED AIR (HAZ. WASTE)	06/01/2011	\$64.930	12/01/2011	\$66.180		
TUNNEL WORK - FREE AIR	06/01/2011	\$55.000	12/01/2011	\$56.250		
TUNNEL WORK - FREE AIR (HAZ. WASTE)	06/01/2011	\$57.000	12/01/2011	\$58.250		
VAC-HAUL	08/01/2011	\$46.410	12/01/2011	\$47.070	06/01/2012	\$47.370
	08/01/2012	\$47.720	12/01/2012	\$48.750		
WAGON DRILL OPERATOR	06/01/2011	\$50.350	12/01/2011	\$51.600		
WASTE WATER PUMP OPERATOR	06/01/2011	\$61.290	12/01/2011	\$61.920	06/01/2012	\$62.490
	12/01/2012	\$63.110	06/01/2013	\$63.890	12/01/2013	\$64.670
WATER METER INSTALLER	09/01/2011	\$68.620	03/01/2012	\$69.420	09/01/2012	\$70.670
	03/01/2013	\$71.920				

Additional Apprentice Information:

Minimum wage rates for apprentices employed on public works projects are listed above as a percentage of the pre-determined hourly wage rate established by the Commissioner under the provisions of the M.G.L. c. 149, ss. 26-27D. Apprentice ratios are established by the Division of Apprenticeship Training pursuant to M.G.L. c. 23, ss. 11E-11L.

All apprentices must be registered with the Division of Apprenticeship Training in accordance with M.G.L. c. 23, ss. 11E-11L.

All steps are six months (1000 hours) unless otherwise specified.

- * Ratios are expressed in allowable number of apprentices to journeymen or fraction thereof.
- ** Multiple ratios are listed in the comment field.
- *** APP to JM; 1:1, 2:2, 2:3, 3:4, 4:4, 4:5, 4:6, 5:7, 6:7, 6:8, 6:9, 7:10, 8:10, 8:11, 8:12, 9:13, 10:13, 10:14, etc.
- **** APP to JM; 1:1, 1:2, 2:3, 2:4, 3:5, 4:6, 4:7, 5:8, 6:9, 6:10, 7:11, 8:12, 8:13, 9:14, 10:15, 10:16, etc.

This wage schedule must be posted at the work site in accordance with M.G.L. ch. 149, sec. 27

Failure of the employer to pay "prevailing wage rates," which are the "total rates" listed above, on public works projects is a violation of M.G.L. ch. 149, sec. 27. Contractors with questions about the wage rates or classifications included on the wage schedule have an affirmative obligation to inquire with DLS at www.mass.gov/dols or at 617-626-6952. Employees not receiving such rates should report the violation to the Fair Labor Division of the Office of the Attorney General, 100 Cambridge Street, Boston, MA 02108;

Tel: 617-727-3465.

Issue Date: 09/20/2011

Wage Request Number: 20110920-040

Page 11 of 11

The Massachusetts Prevailing Wage Law M.G.L. ch. 149, §§ 26 – 27

NOTICE TO AWARDING AUTHORITIES

- 'The enclosed wage schedule applies only to the specific project listed at the top and will be updated for any public construction project lasting longer than one (1) year.
- 'You should request an updated wage schedule from the Division of Occupational Safety if you have not opened bids or selected a contractor within 90 days of the date of issuance of the enclosed wage schedule.
- 'The wage schedule shall be incorporated in any advertisement or call for bids for the project for which it has been issued.
- 'Once a contractor has been selected by the awarding authority, the wage schedule shall be made a part of the contract for that project.

NOTICE TO CONTRACTORS

- The enclosed wage schedule, and any updated schedule, must be posted in a conspicuous place at the work site during the life of the project.
- The wages listed on the enclosed wage schedule must be paid to employees on public works projects regardless of whether they are employed by the prime contractor, a filed sub-bidder, or any sub-contractor.
- The enclosed wage schedule applies to all phases of the project including the final clean-up. Contractors whose only role is to perform final clean-up must pay their employees according to this wage schedule.
- All apprentices must be registered with the Massachusetts Division of Apprentice Training in order to be paid at the reduced apprentice rates. If a worker is not registered with the Division of Apprentice Training, they must be paid the “total rate” listed on the wage schedule regardless of experience or skill level. For further information, please call (617) 727-3486 or write to the Division of Apprentice Training, 399 Washington Street, 4th Floor, Boston, MA 02108

WEEKLY PAYROLL RECORDS REPORT & STATEMENT OF COMPLIANCE

In accordance with Massachusetts General Law c149, §27B, a true and accurate record must be kept of all persons employed on the public works project for which the enclosed rates have been provided. A Payroll Form has been printed on the reverse of this page and includes all the information required to be kept by law. Every contractor or subcontractor is required to keep these records and preserve them for a period of three years from the date of completion of the contract.

In addition, every contractor and subcontractor is required to submit a copy of their weekly payroll records to the awarding authority. This is required to be done on a weekly basis. Once collected, the awarding authority is also required to preserve those records for three years.

In addition, each such contractor, subcontractor or public body shall furnish to the Department of Labor & Workforce Development/Division of Occupational Safety within fifteen days after completion of its portion of the work a statement, executed by the contractor, subcontractor or public body who supervises the payment of wages, in the following form:

STATEMENT OF COMPLIANCE

_____, 2011

I, _____,

(Name of signatory party) (Title)

do hereby state:

That I pay or supervise the payment of the persons employed by

_____ on the _____

(Contractor, subcontractor or public body)

(Building or project)

and that all mechanics and apprentices, teamsters, chauffeurs and laborers employed on said project have been paid in accordance with wages determined under the provisions of sections twenty-six and twenty-seven of chapter one hundred and forty nine of the General Laws.

Signature _____

Title _____

DIVISION OF OCCUPATIONAL SAFETY, 399 WASHINGTON STREET, 5TH FL., BOSTON, MA. 02108

CITY OF NEWTON

SUMMARY OF WORK AND SPECIFIC REQUIREMENTS OF THE CONTRACT FOR PUBLIC WORKS CONSTRUCTION

A. SUMMARY OF WORK

1. **The work under this contract is for the replacement of approximately two hundred twenty (220) linear feet of an existing ten inch (10") diameter sewer, and for two (2) separate spot repairs to an existing eighteen inch (18") diameter drain line (for a collective yield of approximately fifty (50) linear feet). Note that the sewer work portion of this contract will require a continuous operating bypass pump along with the associated piping system.**
2. All other work described in the Project Manual and/or shown on the Plan(s) unless specifically indicated as not to be done.

B. In addition the work under the contract includes:

1. Work outside the Project Site as called for in the Project Manual and/or Plan(s) and as required for the performance of the work.
2. The restoration of any items damaged or destroyed by encroaching upon areas outside the Project Site.
3. All labor, materials, tools, and equipment necessary to do all the work required for the completion of each item as specified, which shall limited not only to the exact intent mentioned, but shall include incidental work necessary or customarily performed for the completion of that item.
4. All items not specifically mentioned or noted in the Project Manual and/or Plan(s), but which are obviously necessary to make a complete working installation.

- C. The Proposed Contract Price shall be complete costs, including overhead, profit, insurance, transportation, and all other costs connected with, or incidental to the work described.

II. TIME FOR COMPLETION AND LIQUIDATED DAMAGES

- A. Upon notification the Contractor shall commence the work specified in the Project Manual as directed by the City. The work shall proceed in a continuous uninterrupted fashion with adequately staffed crews, in a satisfactory manner, which will assure that the work is completed in a timely manner to the satisfaction of the City.
- B. The time for substantial completion pursuant to Article 2 of the Contract shall:

(Continued on next page)

NOTICE: * TIME IS OF THE ESSENCE *

Within five (5) business days of the Notice Of Award the Contractor shall submit to the Purchasing Department:

- **A signed contract.**
- **A Certificate of Insurance (naming the City as an additional insured)**
- **A Labor and Materials Payment Bond and a Performance bond each in the amount of 50% of the contract total.**

Anticipated start date is November 1, 2011. Time for completion is thirty (30) calendar days from the Notice To Proceed.

Time is of the essence for the completion of this contract. If the Contractor fails to achieve substantial or final completion of the Work within the time required by the contract, and unless an extension of time is granted, the Contractor shall pay to the City as liquidated damages, the applicable amount specified in **Article 7** of the **General Conditions** for each day of delay. If different completion dates are specified in the Contract for separate parts or stages of the work, the amount of liquidated damages shall be assessed on those parts or stages which are delayed. To the extent that the Contractor's delay or nonperformance is excused under another section in this Contract, liquidated damages shall not be due the City. The Contractor remains liable for damages caused other than by delay.

III. INSURANCE REQUIREMENTS

- A. The Contractor shall carry and maintain until acceptance of the work such Workmen's Compensation, Automobile Liability, Public Liability, Contingent Public Liability, Property Damage and Contingent Property Damage Insurance, each including blasting coverage, as shall protect him and any sub-contractor performing work covered by this contract from all claims and liability for damages for personal injury, including accidental death, and for property damage which may arise from operations under this contract, whether such operations be by himself or by any sub-contractor or by any one directly or indirectly employed by either of them.
- B. The City shall be named as an additional insured on such policy.
- C. The amounts of such insurance shall be as follows:
 - 1. Workmen's Compensation Insurance as required by Massachusetts General Law.
 - 2. Automobile Liability Insurance on all vehicles owned or hired for a.) Bodily Injury in an amount not less than \$500,000.00 for each occurrence, and not less than \$1,000,000.00 aggregate; b.) Property Damage in an amount not less than \$250,000.00 each occurrence, and not less than \$500,000.00 aggregate.
 - 3. Public Liability Insurance and Contingent Public Liability Insurance in an amount not less than \$500,000.00 for injuries, including accidental death to any one person, and subject to the same limit for each person, in an amount not less than \$1,000,000.00 on account of one accident.
 - 4. Property Damage Insurance and Contingent Property Damage Insurance in an amount not less than \$250,000.00 on account of one accident, and in an amount of not less than \$500,000.00 on account of all accidents.
 - 5. General Liability Insurance shall include Contractual Liability Insurance.
- D. Before any work is started, the successful bidder shall be required to file with the Chief Procurement Officer certificates of insurance coverage as detailed above, with policy numbers and dates of expiration.

- E. The Contractor shall indemnify, hold harmless and defend the City and its departments, officers, employees, servants, and agents from and against all actions, causes of actions, claims, demands, damages, costs, loss of services, expenses and compensation, including attorney's fees and interest arising out of or resulting directly or indirectly from the services rendered pursuant to this Contract, provided that any such action, cause of action, claim, demand, damage, cost, loss of service, expense, compensation (1) in any way grows out of bodily injury, sickness, disease or death, or to injury to or destruction of tangible property, which (2) is caused in whole or in part by any act or omission of the Contractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

END OF SECTION

The Contractor shall insert prices for each item in ink, in both words and figures, and is to show a total bid price. In the event a discrepancy between the written words and figures, the written words shall govern. In the event an error in the bidders total bid price, the corrected total bid obtained by the summation of the products of the unit prices multiplied by the respective quantities shall stand as the bidder's total bid price.

The Contractor is required to review any related plans, conduct a full site review, and read all the provisions in the document before inserting prices, and is further advised to make his own determination as to the accuracy of the estimated quantities before inserting bid prices.

The estimated quantities shown here are based solely upon a reasonable assessment of the project parameters, thus the Contractor is advised that the actual quantities may vary substantially as field conditions necessitate.

ITEM DESCRIPTION & BID PRICE	EST. QTY	UNIT	TOTAL COST
ITEM: 1 - MOBILIZATION (LAYOUT SERVICES, VIDEO FILE, NOTIFICATIONS, MEETINGS, ETC.) THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER LUMP SUM	1	L.S.	\$ _____
ITEM: 2 – MANUFACTURED SILT SACK FOR CATCHBASIN SEDIMENTATION CONTROL THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER EACH	6	EA.	\$ _____
ITEM: 3 –SAWCUTTING OF PAVEMENT THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER LINEAR FOOT	800	L.F.	\$ _____
ITEM: 4 –SEWER BYPASS SYSTEM (INCLUSIVE OF ‘SILENT-PAC’ PUMP) THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER LUMP SUM	1	L.S.	\$ _____

ITEM DESCRIPTION & BID PRICE	EST. QTY	UNIT	TOTAL COST
ITEM: 5 – GENERAL EXCAVATION & DISPOSAL OF MATERIAL(S) <u>THE CONTRACTOR IS TO FACTOR THE COST OF EXCAVATION & DISPOSAL OF EXCESS SOIL AND/OR WASTE ITEMS INTO THE INDIVIDUAL BID PRICES AS HE DEEMS APPROPRIATE. THERE WILL BE NO SEPARATE PAYMENT FOR EXCAVATION OR DISPOSAL COSTS (EXCLUSIVE OF THE WORK PERFORMED FOR THE EXCAVATION AND DISPOSAL OF UNSUITABLE SOIL MATERIAL AND/OR ROCK)</u>	NA	NA	NA
ITEM: 6 – EXPLORATORY EXCAVATION THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER CUBIC YARD	10	C.Y.	\$ _____
ITEM: 7 – EXCAVATION & DISPOSAL OF UNSUITABLE SOIL MATERIAL (INCLUSIVE OF EXTRA-DEPTH WORK) THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER CUBIC YARD	10	C.Y.	\$ _____
ITEM: 8 – EXCAVATION & DISPOSAL OF ROCK THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER CUBIC YARD	1	C.Y.	\$ _____
ITEM: 9 – SAND FOR THE BEDDING OF PIPES & FITTINGS (AS DIRECTED) THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER TON	5	TON	\$ _____

ITEM DESCRIPTION & BID PRICE	EST. QTY	UNIT	TOTAL COST
ITEM: 10 – FURNISH & PLACE ¾" FRACTURED CRUSHED STONE (PRIMARILY FOR PIPE BEDDING) THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER TON	175	TON	\$ _____
ITEM: 11 – GRAVEL FURNISHED FROM OUTSIDE THE SITE (FOR GENERAL USE) THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER TON	20	TON	\$ _____
ITEM: 12 – DENSE GRADED CRUSHED STONE THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER TON	40	TON	\$ _____
ITEM: 13 – TYPE 1-E CONTROLLED DENSITY FILL (‘FAST SET’ & EXCAVATABLE) THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER CUBIC YARD	15	C.Y.	\$ _____
ITEM: 14 – 10" SDR 35 PVC SEWER PIPE THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER LINEAR FOOT	220	L.F.	\$ _____

ITEM DESCRIPTION & BID PRICE	EST. QTY	UNIT	TOTAL COST
ITEM: 15 – 6" SDR 35 PVC SEWER PIPE FOR SERVICE CONNECTIONS THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER LINEAR FOOT	80	L.F.	\$ _____
ITEM: 16 – 10" x 6" SDR 35 PVC TEE-WYE THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER EACH	5	EA.	\$ _____
ITEM: 17 - 6" x 6" SDR 35 PVC 45 DEGREE BEND THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER EACH	5	EA.	\$ _____
ITEM: 18 – 6" x 6" SDR 35 PVC 90 DEGREE LONG SWEEP THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER EACH	5	EA.	\$ _____
ITEM: 19 – 18" SDR 35 PVC DRAIN PIPE FOR THE 'SPOT REPAIR' LOCATIONS THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER LINEAR FOOT	50	L.F.	\$ _____

ITEM DESCRIPTION & BID PRICE	EST. QTY	UNIT	TOTAL COST
<p>ITEM: 20 - 18" SDR 35 PVC DRAIN PIPE FOR THE 'REMOVE & REPLACE' SECTION (AS FIELD CONDITIONS MAY WARRANT)</p> <p>THE SUM OF: _____ DOLLARS</p> <p>AND _____ CENTS</p> <p>(\$ _____) PER LINEAR FOOT</p>	200	L.F.	\$ _____
<p>ITEM: 21 - 'STRONG-BACK' FLEXIBLE COUPLING @ 5" V.C. PIPE x 6" SDR 35 P.V.C. PIPE</p> <p>THE SUM OF: _____ DOLLARS</p> <p>AND _____ CENTS</p> <p>(\$ _____) PER EACH</p>	5	EA.	\$ _____
<p>ITEM: 22 - 'STRONG-BACK' FLEXIBLE COUPLING @ 18" V.C. PIPE x 18" SDR 35 PVC PIPE</p> <p>THE SUM OF: _____ DOLLARS</p> <p>AND _____ CENTS</p> <p>(\$ _____) PER EACH</p>	6	EA.	\$ _____
<p>ITEM: 23 - DRAIN MANHOLE (EXCLUDING COVER & FRAME) FOR THE 'REMOVE & REPLACE' SECTION (AS FIELD CONDITIONS MAY WARRANT)</p> <p>THE SUM OF: _____ DOLLARS</p> <p>AND _____ CENTS</p> <p>(\$ _____) PER VERTICAL FOOT</p>	6	V.F.	\$ _____
<p>ITEM: 23.1 - 10" DUCTILE IRON DRAIN PIPE (CLASS 52)</p> <p>THE SUM OF: _____ DOLLARS</p> <p>AND _____ CENTS</p> <p>(\$ _____) PER LINEAR FOOT</p>	20	L.F.	\$ _____

ITEM DESCRIPTION & BID PRICE	EST. QTY	UNIT	TOTAL COST
ITEM: 24 – FURNISH & INSTALL A MANHOLE COVER & FRAME THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER SET	1	SET	\$ _____
ITEM: 25 – ADJUST A PRE-EXISTING UTILITY CASTING (EXCLUDING GATE BOXES) THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER EACH	1	EA.	\$ _____
ITEM: 26 – 1” TYPE-K COPPER WATER SERVICE PIPE THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER LINEAR FOOT	50	L.F.	\$ _____
ITEM: 27 – 1” CORPORATION COCK THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER EACH	1	EA.	\$ _____
ITEM: 28 – 1” CURB STOP WITH BOX THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER EACH	1	EA.	\$ _____

ITEM DESCRIPTION & BID PRICE	EST. QTY	UNIT	TOTAL COST
ITEM: 29 – NOMINAL 1" – 1 ½" COUPLING FOR WATER SERVICE PIPE THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER EACH	4	EA.	\$ _____
ITEM: 30 – DUST CONTROL (CHEMICAL TREATMENT) THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER POUND	500	LB.	\$ _____
ITEM: 31 – 2" BITUMINOUS CONCRETE FOR TEMPORARY PATCH THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER TON	30	TON	\$ _____
ITEM: 32 – 4" TYPE I-1 BITUMINOUS CONCRETE FOR PERMANENT (PATCH) TRENCH RESURFACING (PLACED IN TWO COURSES) THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER TON	85	TON	\$ _____
ITEM: 33 – CEMENT CONCRETE WITH LAMPBLACK(@ 2 POUNDS / CY) FOR PANEL REPAIR THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER CUBIC YARD	5	C.Y.	\$ _____

ITEM DESCRIPTION & BID PRICE	EST. QTY	UNIT	TOTAL COST
ITEM: 34 – LOAM BORDER & LAWN RESTORATION THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER SQUARE YARD	10	S.Y.	\$ _____
ITEM: 35 – MATERIALS TESTING ALLOWANCE THE SUM OF: _____ <u>FIVE HUNDRED</u> _____ DOLLARS AND _____ <u>NO</u> _____ CENTS (\$ _____ <u>500.00</u> _____) PER ALLOWANCE	1	ALL.	\$ <u>500</u>
ITEM: 36 – MISCELLANEOUS WORK ALLOWANCE (ENGINEERS DISCRETION) THE SUM OF: _____ <u>TWO THOUSAND</u> _____ DOLLARS AND _____ <u>NO</u> _____ CENTS (\$ _____ <u>2,000.00</u> _____) PER ALLOWANCE	1	ALL.	\$ <u>2,000</u>
ITEM: 37 – ALLOWANCE FOR THE PAYMENT OF POLICE OFFICERS THE SUM OF: _____ <u>FOUR THOUSAND</u> _____ DOLLARS AND _____ <u>NO</u> _____ CENTS (\$ _____ <u>4,000.00</u> _____) PER ALLOWANCE	1	ALL.	\$ <u>4,000</u>
ITEM: 38 – WARNING AND/OR SAFETY DEVICES FOR THE CONTROL OF CONSTRUCTION OPERATIONS THE SUM OF: _____ DOLLARS AND _____ CENTS (\$ _____) PER LUMP SUM	1	L.S.	\$ _____

ITEM DESCRIPTION & BID PRICE	EST. QTY	UNIT	TOTAL COST
ITEM: 39 – FURNISH & MOUNT SAFETY & SPECIALTY SIGNBOARDS (INCLUDING THE POST SYSTEM)			
THE SUM OF: _____ DOLLARS			
AND _____ CENTS			
(\$ _____) PER SQUARE FOOT	30	EA.	\$ _____

TOTAL BID:

The Total for all items on this page must be inserted in Paragraph “C” of the BID FORM.

END OF SECTION

SECTION 1**Item 1 – MOBILIZATION****(LAYOUT SERVICES, VIDEO FILE, NOTIFICATIONS, MEETINGS, ETC.)****Description**

(a) The Contractor shall examine the existing field conditions, most particularly the invert elevations of the targeted manholes, and he shall subsequently extract, correlate, interpolate and thereafter post the design grades in the field as the work commences to ensure a consistent gradient is achieved between manholes when laying the proposed pipe.

IMPORTANT: The Contractor is responsible for having the accuracy of the plan information verified with regard to both the stationing and the grade assigned to the benchmark points by performing a field check between successive points prior to locating and posting any design grades.

(b) The Contractor is to make a video tape and/or photographic record of all existing sideline conditions, prior to the commencement of construction activities, and/or as may be required as the construction activities progress, for the purpose of documenting all decrepit, and/or extraordinary points of concern. All video and picture making shall be done on foot and shall not be 'shot' from a vehicle.

(c) The Contractor is to coordinate and make accommodations for all work performed on private property in the execution of this contract, and is to further coordinate, arrange and/or make accommodations for the performance of all second party utility work which may be required in order to complete the work required under this contract.

(d) The Contractor is responsible for the scheduling and coordination of all Police services under this item, however the actual cost of Police Services will be paid for under **Item 37**.

(e) Under this item the Contractor will be required to attend informational meetings, typically one for the general public when deemed necessary, and several with the City of Newton administration in order to discuss and subsequently address any points of concern, including but not limited to; a Preconstruction Conference, Progress Conference(s), and/or inspection walk-throughs.

(f) Under this item the Contractor is responsible for processing all the necessary paperwork in the execution of this contract, as well as providing and distributing fliers and notifications to abutters and other concerned parties as the project commences and as it progresses.

(g) Under this item the Contractor shall comply with all special procedural and/or other site specific directives as stipulated on the plan(s) to ensure a structured and efficient execution of this contract. In addition, and from time to time, the Contractor shall also be required to accommodate and comply with other special requests so that the needs of the general public, abutters, and/or other City of Newton agencies are addressed swiftly and appropriately.

(gg) Under this item the Contractor shall work closely and cooperatively with the Engineer to resolve all field and/or administrative issues. This cooperative work shall consist of, but is not limited to, performing field investigations to determine the best course of action(s) to address each particular issue at hand, which work may require survey and/or preliminary layout efforts by the Contractor. In addition the Contractor shall assign field personnel for the purpose of performing any investigative activities, or for the scheduling of the same, which work shall be done in a timely manner at the request of the Engineer, and/or for contacting and coordinating with any interested party for the purpose of expediting the project.

Method of Compliance

- (h) **IMPORTANT: The Contractor is responsible for checking the accuracy of the plan information with regard to both the stationing and the grade assigned to the benchmark points by performing a field check between successive points prior to locating and posting any design grades.** The grade points shall be posted all along the roadway corridor on sturdy colorized four foot (4') high iron pins and/or stakes such that the final pipe gradient, once completed, fully complies with the design scheme and/or with any modification necessitated by field changes ordered by the Engineer. However, the posting of grades shall not be limited to just the design grades but shall also include the interpolation and posting of intermediate grades and/or the re-posting of certain grades, as may be from time to time required by any interested party in order to successfully investigate and/or otherwise install, to the satisfaction of the Engineer, any drainage, curbing, pavement and/or any other grade dependent project related component or grade dependent issue.
- (i) The Contractor shall coordinate the grading and layout activities with the Engineer to ensure that the design grades are posted in an expeditious and acceptable manner. To that end the Contractor shall supply and install, at all critical grade points identified on the plan (and/or profile), as many sturdy pins and/or stakes as he deems necessary, or as otherwise may be required by the Engineer. The pins and/or stakes, once set, shall be clearly marked with paint and flagging such that their physical location, as well as the posted grades, can be easily seen by the general public and by the field personnel. Subsequently, once the pins and/or stakes have served their purpose, they shall be immediately removed by the Contractor.
- (j) The Contractor is to coordinate with the Engineer in making a video tape and/or photographic record of all existing sideline conditions prior to the commencement of construction activities, or as otherwise may become necessary as the construction activities commence, for the purpose of documenting all decrepit, and/or extraordinary points of concern or interest. This video record shall be made by the Contractor and a copy, or a secondary video tape, shall be delivered to the Engineer.
- (k) As the project commences the Contractor may opt to make a photographic record in lieu of a videotape but only to supplement the preconstruction sideline video survey, and only when a photographic record is deemed necessary and sufficient by the Engineer and/or the Contractor.
- (l) Videos and/or photographs are to be taken and delivered to the Engineer in such a manner that the subject matter can be clearly seen, and in such a timely manner that the collected information is not lost. **The video and/or photographs are to be made on foot via a hand-carried camera. No digital pictures shall be allowed. Only conventionally developed film is to be used.**
- (m) The Contractor is to give ample notice prior to performing certain extraordinary construction related activities on private lands (i.e walls, steps, pipes, etc.), and/or is to discuss, and/or is to make safe and reasonable accommodation of access, for all private property abutters affected by the scheduled construction activities at hand. **In certain cases the Contractor will be further required to make special accommodations for the handicapped or for other physically challenged or sensor impaired individuals who live in or about the construction area so that their needs may be appropriately addressed.** Notice of intent to construct or to disturb private property and/or access routes shall be made at least twenty four (24) hours in advance of the scheduled activity and/or as directed by the Engineer. This notification shall be made in writing on a format acceptable to the Engineer, with said notices being posted at the subject address in a location nearest to the regular mail delivery location. The decision to post notices will be at the discretion of the Engineer in the field.

Method of Measurement

(n) Under this item the Engineer shall make **percentage payments** as he deems appropriate during the course of these activities.

Basis of Payment

(o) Under **Item 1** the Contractor will be paid the **lump sum** price for all administrative activities, labor and/or materials required to complete these tasks throughout the entire term of the project.

SECTION 2**Item 2 – MANUFACTURED SILT SACK FOR CATCHBASIN SEDIMENTATION CONTROL****Description**

(a) Under this item the Contractor shall install initially new silt sacks in all catchbasins in accordance with the directives of this Section. The silt sacks shall be strategically installed along the roadway such that any soil contaminated run-off, generated by the Contractor's operations, is captured in the silt sack. To that end the silt sacks shall be continuously moved forward of the work as the work progresses and shall not be removed from any catchbasin until such time as all potential run-off for the immediate workzone is deemed to be reasonably free of silt contamination by the Conservation Commission and/or the Engineer.

Material

(b) **The silt sack shall be a manufactured unit** that is specifically designed as a sedimentation containment device and it shall be provided with integrally equipped fabric lugs through which shall pass #8 (eight) steel reinforcing bar such that, upon the removal of the catchbasin grate, the silt sack shall neither fall into the catchbasin structure nor shall it allow its contents to prematurely empty into the catchbasin unit.

(c) The steel rebars shall be cut and fitted to the silt sack in such a way that they pose no projection hazards. In addition, the steel bars shall be reasonably free of any sharp edges.

(d) In the event the silt sack is installed where there is a curb opening (i.e. inlet opening) then the Contractor shall also equip the silt sack unit with a foam filler to prevent any sedimentation from bypassing the silt sack.

Method of Construction

(e) The placement of silt sacks shall be at the discretion of the Engineer.

(f) The Contractor shall not commence with any trenching operations until such time as silt sacks have been installed in every catchbasin lying downstream from his workzone and which has the potential of intercepting the run-off from the workzone.

(g) Once the silt sacks have been fitted to the catchbasin the Contractor shall replace the catchbasin grate in such a way that it lies flush with the top of the catchbasin frame. Whenever this cannot be achieved, or whenever a potential tripping hazard exists, then the Contractor shall place a safety device at that location.

(h) The Contractor shall be diligent in keeping the silt sack clean and he shall remove all excessive silt either by his own volition or as he is otherwise directed to do so by the Engineer.

(i) The Contractor shall continue to move the silt sacks forward of the work as the Engineer either directs and/or allows or the Contractor shall otherwise install supplemental silt sacks as the case(s) may necessitate.

(j) When the silt sacks are emptied it shall be done in a responsible fashion so that the captured silt is immediately discarded from off of the site.

(k) Double catchbasins shall be provided with two silt sacks

Method of Measurement

(l) Measurements taken for payment of shall be **for each new silt sack** that is initially provided by the Contractor. **To that end the Contractor will be required to subsequently remove, empty and move the silt sack to a new location without further compensation.**

Basis of Payment

(m) Under **Item 2** the Contractor will be paid the contract unit price **for each new silt sack** that is initially provided by the Contractor under the direction of the Engineer. **To that end the Contractor will be required to subsequently remove, empty and then move the used silt sack to a new location without further compensation,** which unit price shall include full compensation for all labor, materials, tools, equipment and all incidental work necessary to complete the work under this item, as shown on the plans, as directed by the Engineer and as specified herein.

SECTION 3**Item 3 – SAWCUTTING OF PAVEMENT****Description**

(a) Under **Item 3** the Contractor shall work closely with the Engineer to mark out the perimeter limits of the proposed work along which the **roadway and/or walkway and/or driveway pavements** shall be cut, and such lines shall not be cut until they have been reviewed by the Engineer.

(b) Under **Item 3** **only water cooled self-propelled self-contained power driven saws shall be used to cut the pavement structure(s). No wheel cutters or similar devices are to be used in this operation.** Water shall be provided by the Contractor who shall coordinate such activities and metering with the City of Newton Utilities Division.

(c) All excess material generated by the sawcutting operation shall be continuously removed from the outlying surfaces of the undisturbed pavement structures.

Method of Construction

(d) **The sawcutting shall be done on a work-zone by work-zone basis. No milling of the next consecutive work-zone shall be undertaken until such work has been authorized by the Engineer.**

(e) The Contractor shall make an investigation of the site and shall layout a series of lines which will best preserve the structural integrity of the existing roadway and/or will best preserves the aesthetic appearance of the pavement structure once it is patched. The lines shall be initially made in keel or chalk and shall not be painted until such time as the Engineer has had time to review the width of the proposed trench as well as the overall cutting pattern. Upon authorization of the Engineer the Contractor shall place string lines upon the roadway surface and shall overspray the stringlines with a latex based paint to create an accurate series of lines along which the saw shall be ultimately placed. The overspraying of the stringline shall be done in a neat and reserved fashion so as not to obliterate the 'shadow' of the stringline and/or to be otherwise cause an unsightly blemish on the overall roadway system.

(f) Any additional research, preparation, and/or subsequent adjustments to the guidelines, as well as any additional supplemental sawcutting, which must necessarily take place after the construction work has actually begun, shall be borne by the Contractor at his own expense.

(b) The self-propelled water cooled saw shall not make and/or produce excessive noise, dust or sludge in this operation. The Engineers decision in these matters shall be final. Silt sacks shall be deployed at the downstream catchbasin for the purpose of capturing any sludge material generated by this operation.

(h) **The kerf of the saw blade shall extend completely through the entire pavement** so that when the pavement material is removed there is no tearing of that portion of the adjacent pavement which is to remain. However, in the case of cement concrete roadways, the Contractor is to saw cut only to the top of the existing reinforcing bars so that ample steel is preserved to which the new steel reinforcement can be subsequently tied.

(i) In those cases where obstructions disallow the saw to cut or the milling process to penetrate completely through to the end of the run then the Contractor shall use pneumatic hammers to complete the cut.

Method of Construction (Continued)

(k) Water shall be provided to the Contractor for these operations **but no 'water required' sawcutting shall take place when the prevailing air temperature is forty (40) degrees and falling**, however any icing conditions caused by these operations shall be the responsibility of the Contractor to rectify expeditiously until such icing conditions are completely eradicated.

(l) The Contractor is to make all arrangements with the City of Newton Water Division for the installation of a temporary and/or portable water meter system. **The City of Newton will absorb the cost of the City supplied water, however the Contractor shall draw water only from those hydrants which have been pre-approved by the Superintendent of Water, and no water is to be drawn from any City hydrant until such time as the Contractor has posted a one-thousand (\$1000) dollar deposit** with the Water Superintendent, and has obtained, in return, a water meter assembly equipped with a backflow preventer. Any water drawn for any operation under this contract is to be metered through this unit. At the end of the trench preparation operations, and **providing that the water meter/backflow preventer unit has been returned** to the Water Superintendent, complete and in good working order, then **the deposit shall be refunded to the Contractor** by the Superintendent.

(m) In all cases the Contractor shall install a gate valve at the source point of the flexible hose connection which can be easily closed should the flexible hose fail. Only heavy-duty water conduits shall be supplied by the Contractor and they shall be of such a quality and grade and/or otherwise protected such that they are fully resistant to rupturing and/or coupling separation when impacted by wheeled construction vehicles. The flexible water line feeding the saw or milling unit shall be manufactured from heavy duty materials to resist failure from traffic abrasion. Further, any flexible line shall be leak free and shall be well marked so as not to impede vehicular and/or pedestrian safety.

(n) Water supply hoses shall be draped in the most responsible manner, and clearly marked with MUTCD classified warning devices, to prevent and/or minimize any impact to pedestrian and/or vehicular traffic.

(o) The Contractor shall be diligent in conserving water. To that end only enough water shall be used to service the needs of the operation and at no time shall water be allowed to leak from the conduits and/or be allowed to run without benefit to the sawcutting and/or dust control measures.

Method of Measurement

(p) Under **Item 3** the Contractor will be paid the contract price for **each linear foot** of water-cooled sawcutting that has been pre-approved by the Engineer.

Basis of Payment

(q) Under **Item 3** the Contractor will be paid the contract price for **each linear foot** of water-cooled sawcut that has been pre-approved by the Engineer, which unit price shall include the price for all labor, equipment and materials required to complete these tasks throughout the entire term of the project, inclusive of the supplying of water, and all incidentals necessary to complete the work under this item, as shown on the plans, as directed by the Engineer and as specified herein.

SECTION 4**Item 4 – SEWER BYPASS SYSTEM (INCLUSIVE OF ‘SILENT-PAC’ PUMP)****Description**

(a) Under this item, the Contractor is to furnish and **install a critically silenced sewer bypass pumping system**. The system shall include, but is not limited to, a pump furnished inside a critically silenced enclosure, all the required pipes and fittings and all necessary ramps over the bypass pipe. Under this item the Contractor is to furnish and install all the required elements of the system, as well as establish and maintain the entire system over the entire duration of the project.

(b) **The system shall run 24 hours a day throughout the entire duration of the project**, and shall be capable of conveying 100% of the daily sewer flow through the repair area, and shall be leak free for the entire duration of its deployment. It is the responsibility of the Contractor to ensure that this directive is met at all times.

(c) It shall be the Contractors responsibility to determine the size, type and number of pump(s) required, as well as the size, type and layout of the bypass pipe system itself. The Contractor must ensure that 100% sewer flow is maintained on a continuous basis (i.e. 24 hours a day) for the entire duration of the project.

(d) It shall be the Contractors responsibility to notify all residents in the project area regarding how the proposed work under this Contract will effect them and their property. All notifications shall be delivered to the residents on 8.5"x11" stationary bearing the Contractor's company letterhead, and such notice shall fully explain the scope and impact of the project as well as provide an emergency telephone number for their use. **Such notification shall be paid for under Item 1.** The Contractor shall subsequently make any necessary arrangements with the private property owners as required to ensure sewer and/or water flows are adequately maintained.

(e) In the event that any elements of the system fail, the Contractor shall immediately repair the defective element of the system to the satisfaction of the Engineer. The Contractor shall provide the City of Newton with an emergency phone number on which he can be reached 24 hours a day, 7 days a week in the event an emergency repair to the system is required. Such repairs to the system shall be made at no additional cost to the City of Newton.

(f) The Contractor shall check the pump and bypass system twice daily, in no less than eight hour increments, inclusive of weekends and/or holiday events, to verify and ensure that the entire system is operating and functioning at one-hundred percent efficiency levels and in a leak-free state. Further, the Contractor shall also take special precautions during periods of inclement and/or freezing weather conditions.

(g) **The Contractor is solely responsible for cleaning up any sewer spillage caused by leaks or any spillage which may occur for any other reason. In addition the Contractor shall act expeditiously to contain, control and ultimately stop any sewerage from exiting the bypass system, and shall immediately thereafter remove all sewerage and/or contaminated material(s) from the site to be disposed of by the Contractor at no expense to the City.**

Materials

(h) **The pump is to be a critically silenced unit**, fully contained within a sound dampening enclosure mounted on wheels so that that contractor may have the ability to move the unit throughout the job site as requested by the Engineer. The pump itself shall utilize modern technology in the area of sound reduction, including but not limited to a critically silenced enclosure which is capable of reducing sound levels to a maximum of 75 decibels at a distance of 30 feet.

Materials (continued)

(i) The bypass pipe and fittings shall be manufactured of a high quality material capable of withstanding H-20 loading as well as sudden impacts from traffic related incidents. In addition the pipe and all associated fittings shall be capable of withstanding the maximum pressure that may potentially be imposed on the pipes by the pump system.

(j) Once established, the bypass pipe itself shall be leak free at all connection points and shall convey 100% of the daily sewer flow as required by the City of Newton. The pipe shall not move by the normal forces it shall encounter on a daily basis, but in the event the Engineer requests the system be reconfigured, the Contractor shall have the ability to disassemble and reassemble the entire bypass system and its associated pipe network.

(k) At all crossing points, the bypass pipe shall be either recessed into the pavement or shall otherwise be ramped (to the satisfaction of the Engineer) to safely allow for the crossing of all pedestrian and/or motor vehicles. In all locations where the pipe crosses a sidewalk or other location where pedestrians shall be crossing the pipe by foot or by wheelchair, the ramp shall not exceed 5% and shall be accessible according to the AAB regulations for handicap access. In addition, all pedestrian crossings shall be clearly marked with orange spray paint.

(l) The type of ramps, and the materials of which they are to be constructed, shall be of such a nature that the temporary ramping means, once installed, shall be immovable and shall remain stable until such time as the bypass system, for which it was built, has been completely disassembled and removed. Further, the ramping system(s) shall not impede vehicular or pedestrian access in any way but shall enhance it. Upon completion of work, the Contractor shall remove all ramps and there shall be no permanent blemishes on either the roadway or sidewalk area caused by the process of installing or removing the ramps or the materials of which they were constructed. Such damage shall be repaired by the Contractor at no additional cost to the City of Newton, to the satisfaction of the Engineer.

Method of Construction

(m) The bypass system shall begin at the nearest upstream manhole and shall convey the sewer flow to a downstream sewer manhole.

(n) The inlet side of the temporary bypass pipe shall be installed in the upstream sewer manhole at the elevation manhole invert. The pipe shall be secured in place in a removable fashion, which, upon removal shall not cause damage to the sewer manhole. The discharge end of the bypass pipe shall be installed inside the downstream manhole such that the bypass pipe ejects the sewerage at the elevation of the invert of the outlet pipe in the downstream direction.

(o) **The pump shall be setup at a strategic location so as not to impede pedestrian traffic, vehicular traffic, and/or emergency access and shall be protected from vehicles with approved safety devices.** In the event the Engineer requests that the pump be relocated for any reason, the Contractor shall reestablish the entire by-pass system to accommodate the new pump location, to the satisfaction of the Engineer.

(p) Prior to beginning the installation of the proposed sewer, the Contractor shall conduct tests to ensure the sewer bypass system is fully functioning. To that end, prior to system activation, the upstream sewer manhole outlet shall be plugged in a responsible manner which shall ensure that no material, used to create 'the plug', ever enters into the sewer flow while ensuring that 100% of the sewer flow is conveyed through the bypass system. Upon completion of the project, the Contractor shall remove each 'plug' which shall be responsibly handled, transported, and ultimately disposed of off-site at no additional cost to the City.

Method of Measurement

(q) Under this item the Engineer shall make **percentage payments** as he deems appropriate during the course of these activities.

Basis of Payment

(r) Under **Item 4** the Contractor will be paid the **lump sum** price for establishing the sewer bypass system. The lump sum price shall include full compensation for all labor, materials, tools, equipment and all incidental work necessary to complete the work described under this items, as shown on the plans and as directed by the Engineer, inclusive but not limited to the critically silenced pump and enclosure, all required pipes and fittings, the plugging of the upstream manhole, all required ramps.

(s) Temporary patch shall be paid under **Item 31**.

(t) Permanent patch shall be paid for under **Item 32**

SECTION 5**Item 5 – GENERAL EXCAVATION & DISPOSAL OF MATERIAL(S)****IMPORTANT INFORMATIONAL NOTE:****THIS IS A NON-PAY ITEM**

The contractor is to factor the cost of excavation and the associated disposal costs, with regard to excess soil and/or waste items, into the individual bid prices of this contract as he deems appropriate. There will be no separate payment made for any general excavation and disposal costs under this contract (exclusive the excavation and disposal costs of either unsuitable soil material and/or rock).

General excavation consists of the work required for the **excavation and disposal** of excess soil material and/or for waste materials. This item shall cover **all excavation and disposal operations over the entire limits of the project** including, but not limited to, pipes, sidewalks, slopes, trenches (excluding rock/ledge removal), apertures, etc. It shall further include, in addition to the removal and disposal of all excess, undesirable and/or waste material(s), the removal and disposal of brush, trees under six (6) inches in diameter, boulders less than one-half (1/2) cubic yard in volume, existing pavements (whatever their nature may be), peat, mud and anything else that must be removed and disposed of (excluding unsuitable soils as determined by the Engineer) in order to complete the work under this contract.

SECTION 5**Item 6 – EXPLORATORY EXCAVATION****Item 7 – EXCAVATION & DISPOSAL OF UNSUITABLE SOIL MATERIAL(S)
(INCLUSIVE OF EXTRA-DEPTH WORK)**Description

- (a) When in the opinion of the Engineer, or as shown on the plans, it is deemed necessary to excavate a portion of the work to create test pits or to make investigative access holes, the Contractor shall be paid under **Item 6**.
- (b) In the event unsuitable soil material is encountered, and is verified by the Engineer to be unfit for use either as a foundation soil and/or for use as a suitable backfill material, then the Contractor shall excavate and dispose of the unsuitable material under **Item 7**. **This work shall include extra depth excavation. Further, the work to be performed under Item 7 is not to be confused with General Excavation Materials which are classified as either ‘excess material(s) and/or waste material(s)’.**
- (c) If in the opinion of the Engineer the existing soil material is deemed to be unsuitable for re-use, and the refilling of the void caused by the displaced material is required, then the unsuitable material shall be excavated and disposed of by the Contractor under this item and subsequently replaced with material under **Item 9, 10, 11, 12 or Item 13**, whichever is applicable in accordance with the directives of the Engineers deemed appropriate by the Engineer.

Method of Construction

- (d) All applicable portions of **Section 8** pertaining to excavation, backfilling and/or compaction requirements, shall apply.
- (e) No backfill is to contain any type of pavement material.
- (f) All undesirable soil material(s) shall be disposed of by the Contractor at his own expense, however the balance of the material needed to refill the trench shall be paid under **Item 9, 10, 11, 12 or Item 13** whichever is applicable.

Method of Measurement

- (g) Measurements taken for payment of exploratory excavation and/or for the excavation and disposal of unsuitable soil material(s) shall be by the **cubic yard**, and shall be to such depths, and to such widths as approved by the Engineer or are otherwise defined by the payment lines as shown on the plans or construction details. No payment for extra excavation beyond these limits shall be made.

Basis of Payment

- (h) Under **Item 6** the Contractor will be paid the contract unit price **per cubic yard** for exploratory excavation and all incidental work necessary to remove, and subsequently backfill, the trench opening with the original trench material (except that no pavement material shall be used), which unit price shall include full compensation for all labor, materials, tools, equipment, as complete the work under this item as shown on the plans or construction details, as directed by the Engineer, and as specified herein.
- (i) Under **Item 7** the Contractor will be paid the contract unit price **per cubic yard** for excavating and disposing of all undesirable soil material(s), which unit price shall include full compensation for all labor, materials, tools, equipment, as complete the work under this item as shown on the plans or construction details, as directed by the Engineer, and as specified herein.
- (j) Material needed to refill displaced material shall be paid under **Item 9, 10, 11, 12 or Item 13**, whichever is applicable.

SECTION 5**Item 8 – EXCAVATION & DISPOSAL OF ROCK****Description**

- (a) Under **Item 8** the Contractor shall do all the rock excavation necessary to complete all work called for in this contract as shown on the plans, as directed by the Engineer, and as specified herein.
- (b) No soft, loose or broken rock, impacted boulders, or hard pan, but only such solid rock as may be approved by the Engineer in advance as requiring blasting for its removal, or if blasting is not acceptable then by power tools and/or by ram-hoe methods shall also be considered as rock excavation. In addition to ledge removal boulders one-half (1/2) cubic yard or more in volume shall be included in this item.

Method of Construction

- (c) In all rock excavation it is especially provided that the blasting be done with all possible care so as to avoid injury to persons and property; that the rock shall be well covered, and sufficient warning shall be given to all persons in the vicinity of the work before blasting; that great care shall be taken to avoid injury to gas and water pipes, sewers, drains or other structures; that caps or other detonators shall not be kept in the same place in which dynamite or other explosives are kept; and not more than one hundred (100) pounds of explosives shall be stored in the vicinity of the work at any time, except by special permission of the Engineer; and that no blasting shall be done on Sunday; and on weekdays blasting shall not be done between the hours of 3:00 P.M. and 8:00 A.M., except by special permission of the Engineer. The Contractor shall observe all the regulations of the Department of Public Safety of the Commonwealth of Massachusetts, and all City ordinances relating to the storage and handling of explosives, as required by **Article 18**. The Contractor shall conform to any further regulations that the Engineer may deem necessary in this respect.
- (d) Blasts are to be covered with suitable mats or with heavy timbers chained together, if required, or both.

Method of Measurement

- (e) Measurements taken for payment shall be taken by the **cubic yard**.

Note: Trench rock excavation shall be based upon very specific depth and sidewall limits conforming to the payment lines shown in the City of Newton General Construction Details.

Basis of Payment

- (f) Under **Item 8** the Contractor will be paid the contract unit price **per cubic yard** for rock excavation in drain, water, and/or sewer trenches and/or for rock excavation in roadway and parking areas, which unit prices shall be full compensation for all labor, tools, equipment and all incidental work necessary to complete the work under these items as shown on the plans, as directed by the Engineer and as specified herein and in accordance with the payment lines as shown in the City of Newton General Construction Details.

SECTION 6**Item 9 – SAND FOR THE BEDDING OF PIPES & FITTINGS (AS DIRECTED)**Description

(a) The work to be done under this item consists primarily of furnishing and placing common mason sand for the bedding and/or for the refilling of voids created by the installation of proposed pipes and fittings, or for any other end use as the Engineer may direct.

Materials

(b) Common mason sand shall be free of any extraneous debris or any other soil and/or stone contaminant material as well as being free from roots, or any other foreign matter, but having a natural binding quality that will compact to a ninety-five (95) per cent compaction requirement.

Method of Construction

(c) Prior to the placement of sand the Contractor shall remove all loose material and water from the bottom of the excavation. Subsequently the sand shall be placed only by hand shoveling the material in and around the pipe system(s), and such material shall be continuously tamped by an acceptable means so that all voids are completely eradicated until such time as the weight of the pipes are deemed to be fully supported and/or thoroughly bedded and/or embedded all around by the sand fill.

(d) Compaction shall be carried on until the density of the material is not less than ninety-five (95) per cent of the Standard Proctor Density as determined by Standard Laboratory Compaction Test.

Method of Measurement

(e) Measurement taken for **Item 9** shall be by the **ton** for reasonably dry material as delivered to the site and which is subsequently placed. The Contractor shall furnish the Engineer with receipts from the plant showing the weight of each load of reasonably dry sand material which is furnished and placed, however **the Engineer reserves the right to adjust the payment in the event the volume of material is either not entirely used, and/or the material is excessively wet, and/or the shipment has arrived on the site as already partially used.**

Basis of Payment

(f) Under **Item 9** the Contractor will be paid the contract unit price **per ton** for furnishing and placing sand, which unit price shall include full compensation for all labor, materials, tools and equipment, and all incidentals necessary to complete the work under this item as shown on the plans, as directed by the Engineer and as specified herein.

SECTION 7**Item 10 – FURNISH & PLACE ¾” FRACTURED CRUSHED STONE
(PRIMARILY FOR PIPE BEDDING)****Description**

(a) The work to be performed under this item consists of furnishing and placing three quarter inch (¾”) crushed stone for refilling extra excavation(s) when ordered by the Engineer, or to otherwise construct the leaching well around and about the base of hydrants, for the bedding of pipes, or for any other end use as shown on the plans or otherwise as the Engineer may direct. **The excess material displaced by the stone shall be excavated and disposed of under this item.**

Materials

(b) Crushed stone shall consist of clean, hard, tough, durable ledge rock, free from soft, thin, elongated, friable or laminated pieces, disintegrated stone, vegetable or other deleterious matter, and shall have a percentage of wear as determined by the Los Angeles Abrasion Test (A.A.S.H.T.O. Standard Method T96-49) of not more than thirty-five (35) per cent. The stone shall be thoroughly screened and the resulting material conforming to the gradation for three-quarter (¾) inch to one and one-quarter (1-1/4) inch uniformly graded in size and quality, angular and free from rounded surfaces.

Method of Measurement

(c) Measurement taken for **Item 10** shall be by **the ton** for reasonably dry material as delivered to the site. The Contractor shall furnish the Engineer with receipts from the plant showing the weight of each load of fractured stone material which is furnished and placed, however the Engineer reserves the right to adjust payment in the event the volume of material is either not entirely used, and/or the material is excessively wet and/or the shipment has arrived on the site already partially used.

(d) Limits and payment lines have been established and are shown on the General Construction Details or are otherwise may be superceded by the site specific details as shown on the plans. No payment for crushed stone or screened gravel furnished and placed beyond these limits will be paid for unless specifically authorized by the Engineer.

(e) While the size of crushed stone may vary from three-quarter (¾) inch to one and one-quarter (1-1/4) inch, the unit price named shall be for the stone used regardless of size.

Basis of Payment

(f) Under **Item 9** the Contractor will be paid the contract unit price **per ton** for crushed stone complete-in-place. The unit price shall include full compensation **for all excavation and disposal of existing material**, and for all labor, tools, equipment, and all incidental work necessary to complete the work under this item as shown on the plans, as directed by the Engineer and as specified herein.

SECTION 8**Item 11 - GRAVEL FURNISHED FROM OUTSIDE THE SITE FOR GENERAL USE****Item 12 - DENSE GRADED CRUSHED STONE****Description**

(a) Except for the gravel or dense graded crushed stone included as work to be done under other items all gravel or dense graded crushed stone used to complete the work called for in this contract shall be furnished from an off-site source and shall be subsequently placed under these items, as directed by the Engineer.

(b) The depths of dense graded crushed stone and gravel in (non-reclamation) roadway base course for various depths of bituminous concrete pavements are as follows: Four (4) inches of dense graded crushed stone over six (6) inches of gravel for two and one-half (2-1/2) inch pavements, four (4) inches of dense graded crushed stone over eight (8) inches of gravel for four (4) inch pavements, and six (6) inches of dense graded crushed stone over the undisturbed sub-grade for five and one-half (5-1/2) inch pavements, or as directed by the Engineer.

Materials

(c) All gravel shall be run of the bank gravel containing no stone larger than three (3) inches in diameter and shall be free from roots, or other foreign matter, but having a binding quality that will compact to a ninety-five (95) per cent compaction requirement. Dense graded crushed stone shall conform to Division III, Materials, subsection M2.01.7 of the Commonwealth of Massachusetts Department of Public Works Standard Specifications for Highway and Bridges, dated 1988. All gravel and dense graded crushed stone shall be subject to the approval of the Engineer. **All subsequent references to gravel in this section shall also apply to dense graded crushed stone.**

Method of Construction

(d) The gravel shall be spread from self-spreading vehicles, or with power graders of approved types or by hand upon the prepared sub-base. Care shall be taken while spreading the gravel to rake forward and distribute the largest stone, so that they will be at the bottom of the gravel course and be evenly distributed.

(e) The gravel so placed shall be thoroughly rolled true to the lines and grades, as directed, with a self-propelled three (3) wheeled roller or tandem roller weighing not less than twelve (12) tons until it presents a firm, stable and unyielding surface, and until it ceases to creep under the wheels of the roller. Any depressions that appear during or after rolling shall be filled with gravel and re-rolled until the surface is true and even.

(f) Any area that is inaccessible to mobile mechanical equipment or in restricted areas shall be compacted with pneumatic rammers or powered hand tampers.

(g) Compaction shall be carried on until the density of the material is not less than ninety-five (95) per cent of the Standard Proctor Density as determined by Standard Laboratory Compaction Test. The Contractor shall arrange and pay for and submit to the Engineer results of such tests taken in such number as to indicate a test of every eight hundred (800) square feet of compacted area.

Method of Construction (Continued)

- (h) No lift of freshly placed material shall exceed twelve (12") in depth.
- (i) The gravel base course shall be fine graded and rolled to a true grade, the prescribed number of inches in depth, and parallel to the finished grade of the roadway. The Contractor shall, when the Engineer orders to do so, place iron pins or stakes along the centerline, and both gutter lines or wherever he may decide, and mark the necessary grades thereon. The Contractor shall supply all the labor and material necessary.

Method of Measurement

- (j) Measurement taken for **Item 11** shall be by the **ton** for reasonably dry material as delivered to the site and which is subsequently placed. The Contractor shall furnish the Engineer with receipts from the plant showing the weight of each load of reasonably dry gravel material which is furnished and placed, however **the Engineer reserves the right to adjust the payment in the event the volume of material is either not entirely used, and/or the material is excessively wet, and/or the shipment has arrived on the site as already partially used.**
- (k) Measurement taken for **Item 12** shall be by the **ton** for reasonably dry material as delivered to the site and which is subsequently placed. The Contractor shall furnish the Engineer with receipts from the plant showing the weight of each load of reasonably dry dense graded material which is furnished and placed, however **the Engineer reserves the right to adjust the payment in the event the volume of material is either not entirely used, and/or the material is excessively wet, and/or the shipment has arrived on the site as already partially used.**

Basis of Payment

- (l) Under **Item 11** the Contractor will be paid the contract unit price **per ton** for furnishing and placing gravel, which unit price shall include full compensation for all labor, materials, tools and equipment, and all incidentals necessary to complete the work under this item as shown on the plans, as directed by the Engineer and as specified herein.
- (m) Under **Item 12** the Contractor will be paid the contract unit price **per ton** for furnishing and placing dense graded crushed stone, which unit price shall include full compensation for all labor, materials, tools and equipment, and all incidentals necessary to complete the work under this item as shown on the plans, as directed by the Engineer and as specified herein.

SECTION 9**Item 13 – TYPE 1-E CONTROLLED DENSITY FILL ('FAST SET' & EXCAVATABLE)****Description**

(a) The work to be done under this item consists of the excavation and disposal of existing site material(s) and subsequently furnishing and placing Controlled Density Fill (CDF) to refill trenches as shown on the plans and/or as directed by the Engineer.

Materials

(b) Type 1E Controlled Density Fill (CDF) shall be of the excavatable 'fast-set' type and shall conform to the requirements of Section M4.08.0 of the Commonwealth of Massachusetts Standard Specifications for Highways and Bridges, Dated 1988, and shall further comply with the following;

- The set-time (from installation to initial cure) shall be from one (1) to two (2) hours.
- The CDF material shall have a slump of eight (8) to eleven (11) inches.
- CDF-FE composition shall be as follows:

Product	Weight	Specific Gravity	Volume (Cubic Feet)
Cement	60	3.15	0.28
Fly Ash		2.3	0
Sand	2800	2.62	17.0
Air		12%	3.24
Water	406	1.0	6.52

- The unconfined compressive strength target shall be one hundred (100) psi at ninety (90) days.
- Any excessive run-off is to be controlled by the Contractor so as to totally eliminate icing conditions, nuisance dusts, spatters, drain system contamination, or any other adverse condition as determined by the Engineer.

Method of Measurement

(c) CDF will be measured by the **cubic yard** complete-in-place.

Basis of Payment

(d) Under **Item 13** the Contractor will be paid the contract unit price **per cubic yard** for controlled density fill complete-in-place which unit price shall include full compensation for all labor, tools, equipment, and all incidental work necessary to complete the work under this item as shown on the plans, as directed by the Engineer and as specified herein, **inclusive of the excavation and disposal costs associated with the removal of existing material(s).**

SECTION 10**Item 14 - FURNISHING, TRENCHING, LAYING 10" SDR 35 PVC SEWER PIPE****Item 15 - FURNISHING, TRENCHING, LAYING 6" SDR 35 PVC SEWER PIPE
FOR SERVICE CONNECTIONS**Description

(a) Under **Item 14** the Contractor shall furnish, trench and lay, complete-in-place (exclusive of crushed stone bedding) ten inch (10") SDR 35 PVC sewer pipe, and under Item 15 the Contractor shall furnish, trench and lay, complete-in-place (exclusive of crushed stone bedding) six inch (6") SDR 35 PVC sewer pipe of the type shown on the plans, as directed by the Engineer and as specified herein. **The use of conventional auto-levels and related laser and/or surveyor quality transit equipment is required in the installation of all sewer pipes, inclusive of house connections, to control both the gradient and the alignment of the proposed service system.**

(b) Unless otherwise covered under separate and specific items the furnishing, trenching and laying of the PVC sewer pipes **shall include all excavation (excepting rock excavation or unsuitable excavation), disposal of any excess material(s), and for the backfilling** for pipes and manholes to the grades shown on the plans. All such excavation (excepting rock excavation) shall be unclassified and shall include all material to be excavated regardless of what the nature of the material may be. Furnishing, trenching and laying items shall include the removal of trees, shrubs, plants, roots, etc., and the refilling of the trench and removal and disposition of surplus material. These items shall include the furnishing, placing and removal of all sheathing not left in place, all bridging and fencing and the removal of the same unless otherwise required by the Engineer, all pumping, bailing, dewatering the water table if necessary to lay the pipe on a dry firm bedding, or otherwise disposing of water through underdrains or otherwise; the furnishing and placing of all temporary underdrains used by the Contractor for the disposal of water; the proper handling of all sewage, storm water or flow in existing adjacent sewers, surface drains, underdrains, water mains and service pipes or other conduits or upon the surface of streets or lands; the building and the removal of all temporary pipe lines and bulkheads; the removal and replacing of such portions of existing structures as may be necessary to make proper connections with the new work; the removal, where necessary, of pipes, conduits, sewers, underdrains, drains, manholes, catch-basins, and similar existing structures, together with their contents, and including stonework, woodwork, ironwork, cemented stone, brick masonry, interior bracing, foundations and piling; all protection and restoration of buildings, walls, fences, water mains and service pipes and other existing structures; the restoration and resurfacing of the trenches (unless specifically covered under other items), accommodation, protection and restoration of travel, and all other incidental work inclusive of providing final as-built ties and plans.

(c) The following abbreviations may be used in these Specifications:

AASHTO	-The American Association of State Highway & Transportation Officials
ACI	-American Concrete Institute
ANSI	-American National Standards Institute
ASCE	-American Society of Civil Engineers
ASTM	-American Society of Testing Materials
AWS	-American Welding Society
AWWA	-American Water Works Society
FED.SPEC.	-Federal Specifications
DIPRA	-Ductile Iron Pipe Research Association
NEWWA	-New England Water Works Association

Description (Continued)

- (d) Where reference is made to a specification by one of the above mentioned or other associations, it is understood that the latest revisions thereof shall apply.
- (e) In case of conflict, this specification shall take precedence over the above noted specifications.

Materials

- (f) The SDR 35 Polyvinyl Chloride (PVC) pipe and pipe fittings shall conform to ASTM D-3034, SDR 35, with integral wall, bell and spigot joints. The pipe shall be colored green for in-ground identification as sewer pipe.
- (g) The SDR 35 PVC pipe shall be made of PVC resin compound conforming to ASTM D-1784. The locked in rubber sealing gasket shall conform to ASTM D-3212 - "Joints for Drain and Sewer Pipes using flexible elastomeric seals" and ASTM F-477. Spigot ends of the pipe shall be supplied from the factory with bevels. The majority of the pipe shall be furnished in standard 13-foot lengths, but enough random lengths may be provided to allow for connection to manholes and the installation of service laterals. Each end of random length of pipe shall be furnished in lengths of not less than two (2) feet unless otherwise approved by the Engineer.
- (h) The SDR 35 PVC pipe fittings and accessories shall be as manufactured and furnished by the pipe supplier, and shall conform to ASTM D-1784, and shall have bell and/or spigot configuration compatible with that of the pipe. Wyes, tees, bends, caps and adapters, and any other fittings required shall be provided.
- (i) Pipe shall be marked along the outside of the barrel in bold style type and shall indicate the manufacturer's name, pipe size, PVC compound used, and the ASTM material specifications for the PVC compound used; i.e. ASTM D-1784.
- (j) The pipe and fittings shall be homogeneous throughout and free from visible cracks, holes, foreign inclusions or other injurious defects. The pipe shall be as uniform as commercially practical in color, opacity, density and other physical properties.
- (k) No substitution for the materials specified shall be allowed unless the substituted materials are shown to be equal in all respects to the materials specified.
- (l) All materials shall conform to these specifications and to such further specifications as shown on the plans.

Method of Construction

- (m) All work shall be done in accordance with the recommendations of the pipe manufacturer and such written instructions shall be delivered to the Engineer upon request.
- (n) Upon delivery, all pipe and fittings shall be subject to thorough inspection and tests by the Engineer, the right being reserved for him to apply such of the tests specified as he may deem necessary from time to time. The Contractor shall furnish all labor necessary to assist the Engineer in inspecting the pipe and fittings. All necessary tests shall be at the Contractor's expense.

Method of Construction (Continued)

- (o) Care shall be taken in handling and laying pipe to avoid damage to the PVC gravity sewer pipe. Any pipe which, before or after installation, is cracked or which has received a severe blow which might have caused an incipient fracture, shall be marked as rejected and removed at once from the work, even though no such fracture can be seen and the Engineers decision shall be final.
- (p) Immediately before being installed, each length of pipe shall be visually inspected and any pipe found to be insufficient due to damage, manufacturing defects, or otherwise found to be unsuitable, shall not be used..
- (q) The excavations are to be opened in as many places and in such lengths of section as the Engineer shall direct, and the work carried on in each place by a separate gang consisting of as many men as he shall require. The Contractor will make all excavations of sufficient widths to provide ample space for the construction of the pipe lines and manholes, for bracing, sheeting, and the removal of ground water, and shall render the bottom shall be excavated only to widths sufficient to provide working space on each side of the pipe for laying, making tight joints, and compacting the backfill around the pipes. Trench widths shall conform to the excavation sections shown on the plans or construction details.
- (r) The Contractor shall sheet and brace the sides of the excavations sufficient for proper support and prevent any movement that could cause injury to the work and to adjacent property, utilities and structures.
- (s) Excavation, bedding, bridging, and backfill shall conform to the applicable sections shown on the construction details and/or as shown on the plans.
- (t) Pipes shall only be laid with the Engineer in attendance, and are to be evenly bedded on the specially prepared bed(s) as shown on the plans or as otherwise directed. All pipe shall be “laid in the dry”, and all joints shall be made watertight. Pipe with factory-fabricated joints shall be laid in accordance with the manufacturer’s recommendations and instructions.
- (u) Pipe and fittings shall be laid with to conform to the lines and grades indicated on the drawings or as directed.
- (v) Sewer main and house connection alignments and gradients are to be controlled and set by conventional transit, auto-level and rod procedures, and each pipe and fitting shall be laid so as to form a close joint with the previously laid pipe or fitting and bring the inverts continuously to the required grade.
- (w) The Contractor’s attention is directed to the fact that PVC Gravity Sewer Pipe is a “flexible conduit”. The pipe shall be installed in strict accordance with ASTM Designation D-2321 “Recommended Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe” and/or in the manner as shown on the plans. If sheeting or a trench box is used, they shall not be placed below the spring line of the pipe without the approval of the Engineer. When this sheeting or trench box is removed, extreme care shall be taken so as not to disturb the previously constructed pipe bedding, haunching, and the initial backfill.
- (x) The pipe shall be placed proceeding in an upstream direction, bell end upstream to avoid slippage and facilitate grade control, unless otherwise directed by the Engineer.
- (y) When PVC pipe must be cut it shall be cut square by means of fine-tooth handsaw and a miter box according to the manufacturer’s recommendations. Roller-type cutters shall not be used. All cut ends shall be examined for possible cracks caused by cuttings. Cracked pieces shall be marked as rejected and removed at once from the work.

Method of Construction (Continued)

- (z) The pipe ends shall be beveled using a pilot beveling tool, a “cheese grater” type of hand tool, or a disc-sander with medium coarse paper. The field bevel must match the manufacturer’s factory bevel specifications.
- (aa) Suitable bell holes shall be made or left so that only the barrel of the pipe is subjected to bearing pressure from the supporting material. The pipe shall not be driven down to grade by striking it with a shovel handle, timber, rammer, or other unyielding object, but shall be brought to the exact correct grade by adjustment of the supporting material. When the pipe has been properly bedded, enough of the cradle and backfill material shall be in place and compacted between the pipe and the sides of the trench to hold the sewer in correct alignment. Concrete blocks or saddles, bricks, or large stones shall not be used to hold the pipe in alignment.
- (ab) No pipe shall be laid in water or when, in the opinion of the Engineer, trench conditions are unsuitable. Under no conditions shall the sewer laterals be utilized to drain water from excavations during the construction of any sewer system appurtenance.
- (ac) PVC gravity sewer pipe shall be jointed in strict accordance with the recommendations of the manufacturer and his installation instructor. All pipe ends shall be wiped with a clean, dry cloth around the entire circumference from the end to one inch beyond the reference mark. The spigot end is to be lubricated using lubricant supplied by the pipe manufacturer.
- (ad) The Contractor shall furnish all necessary gages to verify the correct positioning of the pipe bell, spigot and gaskets.
- (ae) No pipe shall be covered with water, screened gravel, concrete or backfill until the joints have been inspected and approved.
- (af) The Contractor shall build a tight bulkhead in the pipeline where new work enters an existing sewer. This bulkhead shall remain in place until its removal is authorized or ordered.
- (ag) Sewer house connections are to be installed as shown on the plans, and/or as field conditions necessitate.
- (ah) Where the invert of the sewer is less than ten (10) feet below the surface of the ground, eight (8) inch by six (6) inch PVC wyes and 45° elbows shall be inserted in the main line as shown on the plans. Where the invert of the sewer is greater than ten (10) feet below the surface of the ground, chimneys shall be built. Open end of the pipe and branches shall be closed with airtight stoppers or caps secured in place in a approved manner.
- (ai) Where complete sewer services are to be installed, connection to the existing pipe at the house shall be made with a suitable adapter as approved by the Engineer
- (aj) Where house services are to be terminated at property lines a 6-inch nipple no less than six (6) inches nor more than two (2) feet in length shall be installed with a airtight cap.
- (ak) Except as may be necessary in placing and tamping the backfill, no walking on or working over the pipe will be permitted until the trench has been backfilled to a depth of one (1) foot above the top of the pipe.

Method of Construction(Continued)

(al) At all times, care shall be taken to prevent earth, water, and other materials from entering the pipes through open ends, branches, or manhole openings. When work at an opening is suspended, the opening shall be closed with a airtight stopper or other suitable closure until the resumption of work.

(am) In backfilling the Contractor shall use great care in the selection and placing of the fill around the pipe. **The fill around the pipe shall be crushed stone** and then subsequently selected earth materials which are to be free from frozen lumps. The fill around the pipes shall be placed by hand shovel and thoroughly compacted with suitable pneumatic rammers or powered hand tampers as fast as placed, up to a level of twelve (12) inches above the top of the pipe. The remainder of the trench shall be filled and compacted by mechanical equipment sufficient to ensure against subsequent settlement. In backfilling trenches with rock fragments, enough earth shall be used in conjunction with the rock to fill the voids and shall be tamped in place to the satisfaction of the Engineer. No heavy stones or large masses of earth, as from a power machine, shall be dropped into the trench in such a manner as to endanger the pipe. The materials used for backfilling in street trenches, for a depth of one (1) foot above the top of the pipe, shall be selected portions of the excavated materials free of fractured rock larger than three (3) inches in diameter, and shall be, where possible, strictly of gravel. However, if directed, the entire material for filling shall consist of gravel.

(an) The sewer system is to be watertight, and **if within one (1) year after completion**, leaks have developed, they shall be repaired at the expense of the Contractor and to the satisfaction of the Engineer.

(ao) Deleted.

(ap) Deleted.

(aq) Upon completion of the work, the Contractor shall thoroughly clean and flush the pipe lines, and all pipe liens shall be subjected to a mirror inspection by the Contractor and the Engineer jointly. Any pipe showing settlement after laying or which is not in true alignment shall be taken up and re-laid by the Contractor without additional compensation.

(ar) The Contractor is to take as-built location ties as the work progresses and is to provide a final as-built plan of the entire sewer system upon completion of the project. Ties are to be taken to all pipe junctures, pipe termination points, manholes, angle points, or to any other sewer system and/or other utility fixture which the Engineer deems necessary in order to establish an accurate permanent record of important points of information. Ties are to be delivered to the Engineer as often as he may call for them in order to preserve their safe-keeping. Ties are also to be taken under the direct supervision of the Engineer, and in a manner, and on a format, acceptable to him. Further, the final as-built plan is to contain invert elevations for all installed manholes, invert elevations at the termination point of all sewer house connection stubs, as well as a final alignment plan. The final as-built plan is to be provided to the Engineer in a manner, and on a format, acceptable to him.

Method of Measurement

(as) Measurement for payment under **Item 14** shall be the horizontal distance measured by the **linear foot** along the pipe in place, and the distance shall run from the center of manhole to center of manhole. Where the pipe terminates in structures other than manholes, the distance shall be taken to the inside wall face of the structure.

(at) Measurement for payment under **Item 15** shall be the horizontal distance measured by the **linear foot** along the pipe in place from the top of the chimney riser section to the point of intercept at the existing service connection, and by the vertical distance measured from the top of the sewer main to the top of the riser for chimney sections.

Basis of Payment

(au) Under **Item 14** the Contractor will be paid the contract unit price **per linear foot** of ten (10) inch PVC sewer pipe of the type shown on the plans and as specified herein, **which unit price shall include full compensation for all excavation and the disposal of all unclassified material**, and for all labor, materials, tools and equipment and all incidental work, necessary to complete the work under these items as shown on the plans, as directed by the Engineer and as specified herein, inclusive of as-built ties and plans.

(av) Under **Item 15** the Contractor will be paid the contract unit price **per linear foot** of six (6) inch PVC sewer pipe of the type shown on the plans and as specified herein, **which unit price shall include full compensation for all excavation and the disposal of all unclassified material**, and for all labor, materials, tools and equipment and all incidental work, necessary to complete the work under these items as shown on the plans, as directed by the Engineer and as specified herein, inclusive of as-built ties and plans.

(aw) Bedding and supplemental backfill materials, **when authorized by the Engineer**, shall be paid under **Items 9, 10, 11, 12 or 13**, whichever is applicable.

SECTION 11

Item 16 - FURNISH & INSTALL	10" x 6" SDR 35 PVC TEE-WYE
Item 17 - FURNISH & INSTALL	6" x 6" SDR 35 PVC 45° BEND
Item 18 - FURNISH & INSTALL	6" x 6" SDR 35 PVC 90° LONG SWEEP

Description

Under **Item 16, 17 and 18** the Contractor shall furnish and install, complete-in-place, 10" x 6" SDR 35 PVC tee-wyes, 6" x 6" SDR 35 PVC 45 degree bends and 6" x 6" SDR 35 PVC 90 degree long sweeps respectively, and wooden markers at all sewer house connection junctures and termination points as shown on the plans and/or as directed by the Engineer.

(b) Paragraphs (c), (d) and (e) of **Section 10** shall apply.

Materials

(c) Paragraphs (f) – (l) of **Section 10** shall apply.

(d) Oak markers shall be two (2) inch by two (2) inch stock painted a high fluorescent orange. However, the Contractor may substitute pressure treated lumber materials, of a size and type acceptable to the Engineer.

Method of Construction

(e) Paragraphs (m) – (x), (ac)-(ap), and (aq) of **Section 10** shall apply.

(f) Oak markers shall be set directly at the termination point of all pipes and/or at all critical points of interest as directed by the Engineer, as shown on the plans and as specified herein.

Method of Measurement

(g) Measurement for **Item 16, 17 and 18** will be for each tee-wye, 45 degree bend, and 90 degree long sweep respectively furnished and installed as shown on the plans and as specified herein.

Basis of Payment

(h) Under **Item 16, 17 and 18** the Contractor will be paid the contract unit price for **each fitting**, complete-in-place, which unit price **shall include full compensation for all excavation and the disposal of all surplus and undesirable material**, and for all labor, materials, tools, equipment and all incidental work necessary to complete the work under these items and as shown on the plans, and/or as directed by the Engineer, and as specified herein, inclusive of maintaining and providing as built ties and plans, and for the installation of wooden markers.

SECTION 10**Item 19 - FURNISHING, TRENCHING, LAYING 18" SDR 35 PVC DRAIN PIPE
FOR 'SPOT REPAIR' LOCATIONS****Item 20 - FURNISHING, TRENCHING, LAYING 18" SDR 35 PVC DRAIN PIPE
FOR THE 'REMOVE & REPLACE' SECTION
(AS FIELD CONDITIONS MAY WARRANT)**Description

(a) Under **Item 19** the Contractor shall furnish, trench and lay, complete-in-place (exclusive of crushed stone bedding and flexible couplings) eighteen inch (18") SDR 35 PVC drain pipe of the type shown on the plans for the purpose of performing isolated 'spot repairs', and under **Item 20, in the event it becomes necessary to remove and replace the existing drain pipe, either in whole or in part, within the area adjacent to the proposed sewer repair, for the purpose of protecting or enhancing the existing drain system**, then the Contractor shall furnish, trench, and lay, complete-in-place (exclusive of crushed stone bedding and flexible couplings) eighteen inch (18") SDR 35 PVC drain pipe of the type shown on the, as directed by the Engineer and as specified herein. **The use of conventional auto-levels, of surveyor quality, is required in the installation of all drain pipes, inclusive of house connections, to control both the gradient and the alignment of the proposed service system.**

(b) Unless otherwise covered under separate and specific items the furnishing, trenching and laying of the PVC pipes **shall include all excavation (excepting rock excavation or unsuitable excavation), disposal of any excess material(s), and for the backfilling** for pipes and manholes to the grades shown on the plans. All such excavation (excepting rock excavation) shall be unclassified and shall include all material to be excavated regardless of what the nature of the material may be. Furnishing, trenching and laying items shall include the removal of trees, shrubs, plants, roots, etc., and the refilling of the trench and removal and disposition of surplus material. These items shall include the furnishing, placing and removal of all sheathing not left in place, all bridging and fencing and the removal of the same unless otherwise required by the Engineer, all pumping, bailing, dewatering the water table if necessary to lay the pipe on a dry firm bedding, or otherwise disposing of water through underdrains or otherwise; the furnishing and placing of all temporary underdrains used by the Contractor for the disposal of water; the proper handling of all sewage, storm water or flow in existing adjacent sewers, surface drains, underdrains, water mains and service pipes or other conduits or upon the surface of streets or lands; the building and the removal of all temporary pipe lines and bulkheads; the removal and replacing of such portions of existing structures as may be necessary to make proper connections with the new work; the removal, where necessary, of pipes, conduits, sewers, underdrains, drains, manholes, catch-basins, and similar existing structures, together with their contents, and including stonework, woodwork, ironwork, cemented stone, brick masonry, interior bracing, foundations and piling; all protection and restoration of buildings, walls, fences, water mains and service pipes and other existing structures; the restoration and resurfacing of the trenches (unless specifically covered under other items), accommodation, protection and restoration of travel, and all other incidental work inclusive of providing final as-built ties and plans.

(c) The following abbreviations may be used in these Specifications:

AASHTO	-The American Association of State Highway & Transportation Officials
ACI	-American Concrete Institute
ANSI	-American National Standards Institute
ASCE	-American Society of Civil Engineers
ASTM	-American Society of Testing Materials
AWS	-American Welding Society
AWWA	-American Water Works Society
FED.SPEC.	-Federal Specifications
DIPRA	-Ductile Iron Pipe Research Association

SPECIAL PROVISIONS**PAGE 27**Description (Continued)

(d) Where reference is made to a specification by one of the above mentioned or other associations, it is understood that the latest revisions thereof shall apply.

(q) In case of conflict, this specification shall take precedence over the above noted specifications.

Materials

(f) The SDR 35 Polyvinyl Chloride (PVC) pipe and pipe fittings shall conform to ASTM D-3034, SDR 35, with integral wall, bell and spigot joints. The pipe shall be colored green for in-ground identification as sewer pipe.

(g) The SDR 35 PVC pipe shall be made of PVC resin compound conforming to ASTM D-1784. The locked in rubber sealing gasket shall conform to ASTM D-3212 - "Joints for Drain and Sewer Pipes using flexible elastomeric seals" and ASTM F-477. Spigot ends of the pipe shall be supplied from the factory with bevels. The majority of the pipe shall be furnished in standard 13-foot lengths, but enough random lengths may be provided to allow for connection to manholes and the installation of service laterals. Each end of random length of pipe shall be furnished in lengths of not less than two (2) feet unless otherwise approved by the Engineer.

(h) The SDR 35 PVC pipe fittings and accessories shall be as manufactured and furnished by the pipe supplier, and shall conform to ASTM D-1784, and shall have bell and/or spigot configuration compatible with that of the pipe. Wyes, tees, bends, caps and adapters, and any other fittings required shall be provided.

(i) Pipe shall be marked along the outside of the barrel in bold style type and shall indicate the manufacturer's name, pipe size, PVC compound used, and the ASTM material specifications for the PVC compound used; i.e. ASTM D-1784.

(j) The pipe and fittings shall be homogeneous throughout and free from visible cracks, holes, foreign inclusions or other injurious defects. The pipe shall be as uniform as commercially practical in color, opacity, density and other physical properties.

(k) No substitution for the materials specified shall be allowed unless the substituted materials are shown to be equal in all respects to the materials specified.

(l) All materials shall conform to these specifications and to such further specifications as shown on the plans.

Method of Construction

(m) All work shall be done in accordance with the recommendations of the pipe manufacturer and such written instructions shall be delivered to the Engineer upon request.

(n) Upon delivery, all pipe and fittings shall be subject to thorough inspection and tests by the Engineer, the right being reserved for him to apply such of the tests specified as he may deem necessary from time to time. The Contractor shall furnish all labor necessary to assist the Engineer in inspecting the pipe and fittings. All necessary tests shall be at the Contractor's expense.

Method of Construction (Continued)

- (o) Care shall be taken in handling and laying pipe to avoid damage to the PVC pipe. Any pipe which, before or after installation, is cracked or which has received a severe blow which might have caused an incipient fracture, shall be marked as rejected and removed at once from the work, even though no such fracture can be seen and the Engineers decision shall be final.
- (p) Immediately before being installed, each length of pipe shall be visually inspected and any pipe found to be insufficient due to damage, manufacturing defects, or otherwise found to be unsuitable, shall not be used..
- (q) The excavations are to be opened in as many places and in such lengths of section as the Engineer shall direct, and the work carried on in each place by a separate gang consisting of as many men as he shall require. The Contractor will make all excavations of sufficient widths to provide ample space for the construction of the pipe lines and manholes, for bracing, sheeting, and the removal of ground water, and shall render the bottom shall be excavated only to widths sufficient to provide working space on each side of the pipe for laying, making tight joints, and compacting the backfill around the pipes. Trench widths shall conform to the excavation sections shown on the plans or construction details.
- (r) The Contractor shall sheet and brace the sides of the excavations sufficient for proper support and prevent any movement that could cause injury to the work and to adjacent property, utilities and structures.
- (s) Excavation, bedding, bridging, and backfill shall conform to the applicable sections shown on the construction details and/or as shown on the plans.
- (t) Pipes shall only be laid with the Engineer in attendance, and are to be evenly bedded on the specially prepared bed(s) as shown on the plans or as otherwise directed. All pipe shall be “laid in the dry”, and all joints shall be made watertight. Pipe with factory-fabricated joints shall be laid in accordance with the manufacturer’s recommendations and instructions.
- (u) Pipe and fittings shall be laid with to conform to the lines and grades indicated on the drawings or as directed.
- (v) Drain main and house connection alignments and gradients are to be controlled and set by conventional transit, auto-level and rod procedures, and each pipe and fitting shall be laid so as to form a close joint with the previously laid pipe or fitting and bring the inverts continuously to the required grade.
- (w) The Contractor’s attention is directed to the fact that PVC pipe is a “flexible conduit”. Therefore the pipe shall be installed in strict accordance with ASTM Designation D-2321 “Recommended Practice for Underground Installation of Flexible Thermoplastic (Sewer) Pipe” and/or in the manner as shown on the plans. If sheeting or a trench box is used, they shall not be placed below the spring line of the pipe without the approval of the Engineer. When this sheeting or trench box is removed, extreme care shall be taken so as not to disturb the previously constructed pipe bedding, haunching, and the initial backfill.
- (y) The pipe shall be placed proceeding in an upstream direction, bell end upstream to avoid slippage and facilitate grade control, unless otherwise directed by the Engineer.
- (y) When PVC pipe must be cut it shall be cut square by means of fine-tooth handsaw and a miter box according to the manufacturer’s recommendations. Roller-type cutters shall not be used. All cut ends shall be examined for possible cracks caused by cuttings. Cracked pieces shall be marked as rejected and removed at once from the work.

Method of Construction (Continued)

- (z) The pipe ends shall be beveled using a pilot beveling tool, a “cheese grater” type of hand tool, or a disc-sander with medium coarse paper. The field bevel must match the manufacturer’s factory bevel specifications.
- (aa) Suitable bell holes shall be made or left so that only the barrel of the pipe is subjected to bearing pressure from the supporting material. The pipe shall not be driven down to grade by striking it with a shovel handle, timber, rammer, or other unyielding object, but shall be brought to the exact correct grade by adjustment of the supporting material. When the pipe has been properly bedded, enough of the cradle and backfill material shall be in place and compacted between the pipe and the sides of the trench to hold the pipe in correct alignment. Concrete blocks or saddles, bricks, or large stones shall not be used to hold the pipe in alignment.
- (ab) No pipe shall be laid in water or when, in the opinion of the Engineer, trench conditions are unsuitable. Under no conditions shall laterals be utilized to drain water from excavations during the construction of any drain system appurtenance.
- (ac) PVC pipe shall be jointed in strict accordance with the recommendations of the manufacturer and his installation instructor. All pipe ends shall be wiped with a clean, dry cloth around the entire circumference from the end to one inch beyond the reference mark. The spigot end is to be lubricated using lubricant supplied by the pipe manufacturer.
- (ad) The Contractor shall furnish all necessary gages to verify the correct positioning of the pipe bell, spigot and gaskets.
- (ae) No pipe shall be covered with water, screened gravel, concrete or backfill until the joints have been inspected and approved.
- (af) The Contractor shall build a tight bulkhead in the pipeline where new work enters an existing sewer. This bulkhead shall remain in place until its removal is authorized or ordered.
- (ag) House connections are to be installed as shown on the plans, as field conditions necessitate, and such work shall be done as authorized by the Engineer..
- (ah) Where connections are encountered and the invert of the drain is less than ten (10) feet below the surface of the ground, eighteen (18) inch by six (6) inch PVC wyes and 45° elbows shall be inserted in the main line as shown on the plans or as directed by the Engineer. Where the invert of the drain is greater than ten (10) feet below the surface of the ground, chimneys shall be built. Open end of the pipe and branches shall be closed with airtight stoppers or caps secured in place in an approved manner.
- (ai) Where ‘private’ connections are to be installed, connection to the existing pipe at the house shall be made with a suitable adapter as approved by the Engineer
- (aj) Where ‘private’ connections are to be terminated at property lines a 6-inch nipple no less than six (6) inches nor more than two (2) feet in length shall be installed with an airtight cap.
- (ak) Except as may be necessary in placing and tamping the backfill, no walking on or working over the pipe will be permitted until the trench has been backfilled to a depth of one (1) foot above the top of the pipe.

Method of Construction(Continued)

(al) At all times, care shall be taken to prevent earth, water, and other materials from entering the pipes through open ends, branches, or manhole openings. When work at an opening is suspended, the opening shall be closed with a airtight stopper or other suitable closure until the resumption of work, however at days end the drain line shall be temporarily restored to service in a manner which ensures the free flow of stormwater without causing damage to the adjacent structures.

(am) In backfilling the Contractor shall use great care in the selection and placing of the fill around the pipe. **The fill around the pipe shall be crushed stone** and then subsequently selected earth materials which are to be free from frozen lumps. The fill around the pipes shall be placed by hand shovel and thoroughly compacted with suitable pneumatic rammers or powered hand tampers as fast as placed, up to a level of twelve (12) inches above the top of the pipe. The remainder of the trench shall be filled and compacted by mechanical equipment sufficient to ensure against subsequent settlement. In backfilling trenches with rock fragments, enough earth shall be used in conjunction with the rock to fill the voids and shall be tamped in place to the satisfaction of the Engineer. No heavy stones or large masses of earth, as from a power machine, shall be dropped into the trench in such a manner as to endanger the pipe. The materials used for backfilling in street trenches, for a depth of one (1) foot above the top of the pipe, shall be selected portions of the excavated materials free of fractured rock larger than three (3) inches in diameter, and shall be, where possible, strictly of gravel. However, if directed, the entire material for filling shall consist of gravel.

(an) The drain system is to be watertight, and **if within one (1) year after completion**, leaks have developed, they shall be repaired at the expense of the Contractor and to the satisfaction of the Engineer.

(ao) Deleted.

(ap) Deleted.

(aq) Upon completion of the work, the Contractor shall thoroughly clean and flush the pipe lines. Any pipe showing settlement after laying or which is not in true alignment shall be taken up and re-laid by the Contractor without additional compensation.

(ar) The Contractor is to take as-built location ties as the work progresses and is to provide a final as-built plan of the entire drain system upon completion of the project. Ties are to be taken to all pipe junctures, pipe termination points, manholes, angle points, or to any other sewer system and/or other utility fixture which the Engineer deems necessary in order to establish an accurate permanent record of important points of information. Ties are to be delivered to the Engineer as often as he may call for them in order to preserve their safe-keeping. Ties are also to be taken under the direct supervision of the Engineer, and in a manner, and on a format, acceptable to him. Further, the final as-built plan is to contain invert elevations for all installed manholes, invert elevations at the termination point of all sewer house connection stubs, as well as a final alignment plan. The final as-built plan is to be provided to the Engineer in a manner, and on a format, acceptable to him.

Method of Measurement

(as) Measurement for payment under **Item 19** shall be the horizontal distance measured by the **linear foot** along the pipe in place.

(at) Measurement for payment under **Item 20** shall be the horizontal distance measured by the **linear foot** along the pipe in place.

Basis of Payment

(au) Under **Item 19** the Contractor will be paid the contract unit price **per linear foot** of eighteen (18) inch SDR35 PVC drain pipe of the type shown on the plans and as specified herein, **which unit price shall include full compensation for all excavation and the disposal of all unclassified material**, and for all labor, materials, tools and equipment and all incidental work, necessary to complete the work under these items as shown on the plans, as directed by the Engineer and as specified herein, inclusive of as-built ties and plans.

(av) Under **Item 20** the Contractor will be paid the contract unit price **per linear foot** of eighteen (18) inch SDR35 PVC drain pipe of the type shown on the plans and as specified herein, **which unit price shall include full compensation for all excavation and the disposal of all unclassified material**, and for all labor, materials, tools and equipment and all incidental work, necessary to complete the work under these items as shown on the plans, as directed by the Engineer and as specified herein, inclusive of as-built ties and plans.

(aw) Bedding and supplemental backfill materials, **when authorized by the Engineer**, shall be paid under **Items 9, 10, 11, 12 or 13**, whichever is applicable.

(ax) Flexible couplings shall be paid under **Items 21 or Item 22**, whichever is applicable.

SECTION 11**Item 21 – ‘STRONG-BACK’ FLEXIBLE COUPLING @ 5” V.C. PIPE x 6” SDR 35 PVC PIPE****Item 22 – ‘STRONG-BACK’ FLEXIBLE COUPLING @ 18” V.C. PIPE x 18” SDR 35 PVC.PIPE****Description**

(a) Under **Item 21** and **Item 22**, the Contractor shall furnish and install a ‘strong-back’ type 5” V.C. pipe x 6” SDR 35 P.V.C. pipe flexible coupling and a ‘strong-back’ type 18” V.C. pipe x 18” SDR 35 P.V.C pipe flexible coupling respectively. These adapters shall be installed to connect the existing and proposed pipes for the purpose of creating a watertight seal between these elements.

Materials

(b) The flexible adapter shall be:

Series 1002 Strong-Back RC Repair Couplings as manufactured by Fernco Inc. USA or an approved equal.

Couplings shall conform to ASTM C 1173 specifications for underground installations and shall be factory fitted with:

- A continuous outer stainless steel shield (i.e. a ‘strong-back’) having a minimum thickness of twelve thousandths (.012) of an inch and manufactured of 300 Series Stainless Steel of a length consistent with the length of the inner flexible housing.
- Stainless steel clamps shall comply with the requirements of CSA B602 and shall consist of an integrated means of tightening the clamp assembly to a torque of 60 in-lbs.

Method of Construction

(c) The Contractor shall install the coupling in accordance with the manufacturer’s instructions subsequent to fitting the pipe ends to exact tolerances as shown on the plans and/or as otherwise directed by the Engineer. A copy of the manufacturer’s instructions shall be delivered to the Engineer upon request.

(d) The Contractor shall provide couplings only after verifying the exact outer diameter of the pipes to which they are to be attached to ensure, that once installed, the inner bore presents a smooth channel between the different types of pipe while simultaneously providing a watertight seal all around both ends of the coupling. To that end the Contractor shall use a torque wrench to tighten the clamps to verify that the manufacturer’s requirements have been met.

(e) Couplings shall not be backfilled until the attachment(s) of the coupling have been inspected and approved by the Engineer.

(f) Backfilling around the coupling shall be completed by hand with common masons sand thoroughly tamped in accordance with the plan directives and/or as otherwise directed by the Engineer.

Basis of Payment

(g) Under **Item 21** the Contractor will be paid the contract unit price for **each** ‘strong-back’ flexible coupling @ 5” V.C. pipe x 6” SDR 35 P.V.C. pipe of the type shown on the plans and as specified herein, **which unit price shall include full compensation for all excavation and the disposal of all excess displaced material**, and for all labor, materials, tools and equipment and all incidental work, necessary to complete the work under these items as shown on the plans, as directed by the Engineer and as specified herein, inclusive of as-built ties and plans.

Basis of Payment (Continued)

(h) Under **Item 22** the Contractor will be paid the contract unit price for **each** 'strong-back' flexible coupling @ 18" V.C. pipe x 18" SDR 35 P.V.C. pipe of the type shown on the plans and as specified herein, **which unit price shall include full compensation for all excavation and the disposal of all excess displaced material**, and for all labor, materials, tools and equipment and all incidental work, necessary to complete the work under these items as shown on the plans, as directed by the Engineer and as specified herein, inclusive of as-built ties and plans.

(i) Sand, for the bedding of the coupling, shall be paid for under **Item 9**.

SECTION 12**Item 23 - DRAIN MANHOLE (EXCLUDING COVER & FRAME) FOR THE 'REMOVE & REPLACE' DRAIN SECTION (AS FIELD CONDITIONS MAY WARRANT)****Description**

(a1) **In the event it is deemed necessary by the Engineer to remove and replace an existing drain manhole for the purpose of protecting or enhancing the structural integrity of the existing drain system during the course of the sewer installation then such work shall be done under this item and only as directed by the Engineer.**

(a) Manholes and special manholes shall be built where shown on the plans, as directed by the Engineer and as specified herein.

(b) Standard cement concrete manholes shall be built where the depth from the surface of the ground to the proposed invert is ten (10) feet or less. Special manholes shall be built where the depth from the surface of the ground to the proposed invert is (10) feet or more.

(c) Drain manholes may be either of two (2) types; those built of precast cement concrete and those which are built of cement concrete blocks. The Contractor may install either of these types.

Material

(d) Manholes shall comply with the details shown on the plans, or as otherwise shown in the City of Newton General Construction Details.

(e) Drain manholes which are built of cement concrete block shall conform to Section M4.05.1 of the Commonwealth of Massachusetts Standard Specifications for Highways and bridges, dated 1988; except that all blocks shall be eight (8) inches in width.

(f) The barrels and cones of the manholes must be of the precast Class A cement concrete type and are to be provided with extended reinforced base, however the bottom slab of the sewer manholes may be of brick or of the Class A precast concrete, and inverts and water tables shall be of brick masonry.

(g) All precast cement concrete barrel and cone sections shall be Class A cement concrete and shall conform to the following criteria:

Concrete strength f'c 4,000 PSI @ 28 days. Density 150 PCF.

Cement shall be Portland Type I or III per ASTM C150-81.

Admixtures, air & plasticizers per ASTM C150-81

Reinforcing shall be per ASTM A615 for wire fabric.

Design loading per AASHTO HS20-44, ACI 318-83; ASTM C478-82, C890-82, C913-71.

Construction joints are to be sealed with compressible butyl asphalt gasket material to render fully watertight connections.

The weight of the structure shall be approximately 875 pounds per vertical foot.

Bases of the manholes shall be of the extended type having a non-settling flanged foot.

(g1) Steps shall be co-polymer Polypropylene Plastic with a core of ½" Grade 60 steel reinforcement.

(g2) All pipe access apertures shall be provided with a flexible connector which shall be integrally cast into the structure, and which shall be provided with a stainless steel clamp in order to render an airtight and watertight connection.

Materials (Continued)

(h) Mortar shall consist of cement and sand mixed in the proportion, by volume, of one (1) part cement and two (2) parts sand. Sand shall be clean, sharp, and shall have a gradation common to type known as "Brick Sand". Lime shall not be used.

(i) All brick used in the construction of manholes, or in the construction of the invert, or under the frame and cover, or in the repair and/or restoration of existing sewer manholes, shall be the best quality clay sewer brick, of the class known as "Hard Sewer Brick", burned hard entirely through; shall be straight-edged, of compact texture, and regular and uniform in size and shape. Bricks shall be free from stones and pebbles, and free from cracks, checks or fractures extending into the body of the brick in such a manner as to effect their serviceability or strength. Bricks shall have a compressive strength of not less than four thousand (4000) pounds per square inch when tested (on edge) in accordance with the A.S.T.M. Specifications, Serial Designation: C32-24. They may be rejected if they absorb water to the extent of more than twelve (12) per cent of their dry weight after being dried and then immersed in water, in accordance with A.S.T.M. Specifications, Serial Designation: C32-24. Bricks shall be not less than two and one-quarter (2 1/4) by three and three quarters (3 3/4) by eight (8) inches nor more than two and one-half (2 1/2) by four (4) by eight and one-half (8 1/2) inches in size and shall be of rectangular cross-section. They shall have a smooth plane surface on two ends and at least one edge. When struck together, or when struck with a trowel, they shall give a clear ringing sound. Bricks may be rejected upon visual inspection by the Engineer if, in his opinion, they do not comply with these specifications as to size, shape and freedom from visible defects.

(j) Cement shall be air entrained and shall conform to the requirements of A.S.S.H.T.O. Designation M134-48, Type IA to IIA.

(k) Sand shall be composed of clean, hard, durable and impermeable particles resistant to wear and frost and free from injurious amounts of organic matter, loam, clay, salts, mica and weak grains.

(l) Coarse aggregate may be either gravel stone or crushed stone.

(m) Water shall be clean, clear and free from deleterious amounts of oil, acid, alkali, salts and organic matter.

(n) Class A concrete shall contain a minimum of five hundred sixty (565) pounds of cement per cubic yard of concrete and shall have a minimum compressive strength of two thousand four hundred (2400) pounds at seven (7) days and four thousand (4000) pounds at twenty-eight (28) days.

(o) Omitted

(p) Manholes shall be built to the dimensions, details and other specifications shown on the construction details.

(p) Section 201.62 of the Commonwealth of Massachusetts Standard Specifications for Highways and Bridges dated 1988, shall apply.

Method of Construction

(r) Manholes shall be built in the locations, to the dimensions, details and specifications shown on the plans or the construction details, and/or as directed by the Engineer.

Method of Measurement

(s) Measurements taken for payment shall be taken by the **vertical foot** as measured from the finished invert of the manhole to a point one (1) foot below the grade of the finished rim of the manhole.

Basis of Payment

(t) Under **Item 23** the Contractor will be paid the contract unit price **per vertical foot** of manhole, complete-in-place (excluding the cost of a new or reset casting), which unit prices shall include full compensation for all excavation, the disposal of all excess, waste, and/or undesirable material, any and all pumping if required, and for all labor, materials, tools, equipment and all incidentals necessary to complete the work under these items as shown on the plans, as directed by the Engineer and as specified herein.

(u) Castings (with companion cover or grate), either new, furnished by the City, or salvaged from pre-existing structures on the site, set in full mortar beds true to line and grade as directed, shall be paid for under **Item 24 or Item 25**, whichever is applicable.

SECTION 13**Item 23.1 - FURNISH, TRENCH & LAY 10" DUCTILE IRON DRAIN PIPE (CLASS 52)****Description**

- (a) The Contractor shall furnish, trench and lay, complete in place, ductile iron pipe of the sizes specified on the plans. All pipe drain shall be laid in the location as shown on the plans, as directed by the engineer and as specified herein.
- (b) Furnishing, trenching and laying items shall include all excavation and backfill (except rock excavation) for pipes and manholes to the grades shown on the plans. All such excavation (except rock excavation) shall be unclassified and shall include all material to be excavated regardless of what the nature of the material may be. Furnishing, trenching and laying items shall include the removal of trees, shrubs, plants, roots, etc., and the refilling of the trench and removal and disposal of all lumber not left in place, lumber left in place, all bridging and fencing and removal of same unless otherwise required by the Engineer, all pumping, bailing or otherwise disposing of water through underdrains or otherwise; the furnishing and placing of all temporary underdrains used by the Contractor for the disposal of water; the proper handling of all sewage, storm water or flow in existing adjacent sewers, surface drains, underdrains, water mains and service pipes or other conduits or upon the surface of streets or lands, the building and the removal of all temporary pipe lines and bulkheads, the removal and replacing of such portions of existing structures as may be necessary to make proper connections with the new work; the removal, where necessary, of pipes, conduits, sewers, underdrains, drain, manholes, catch-basins and similar existing structure, together with their contents, and including stonework, woodwork, ironwork, cemented stone, brick masonry, interior bracing, foundations and piling; all protection and restoration of buildings, walls, fences, water mains and service pipes and other existing structures; the restoration and resurfacing of the trenches (except in paved streets which are covered by other items), accommodation and protection of travel and all other incidental work.
- (c) These items shall include the furnishing and installing of bends, tees, stoppers, wyes or any other special fittings needed to complete the work.

Materials

- (d) Ductile Iron Pipe shall be Class fifty-two (52) and shall conform to the requirements of ASA A21.50-1965 (AWWA C150-65) American Standard for the thickness design of Ductile Iron Pipe and ASA A21.51-1965 (AWWA C151-65) American Standard for Ductile Iron Pipe centrifugally cast in metal molds or sand-lined molds for water or other liquids.
- (e) All pipes shall be subject to inspection at the site of work by the Engineer. The purpose of the inspection shall be to cull and reject pipes which, independent of the physical tests, fail to conform to the above specifications in the particulars of dimensions, mixing, molding honeycomb, blisters, cracks, fractures, spalls or position of reinforcement.
- (f) The excavations are to be opened in as many places and in such lengths of section as the Engineer shall direct, and the work carried on in each place by a separate gang, consisting of as many men as he shall require. The Contractor shall make all excavations of sufficient widths to provide ample space for the construction of the pipe lines and manholes for bracing, sheathing and the removal of ground water and shall render the bottom of the excavation firm and dry and acceptable in all respects. The trench at the bottom shall be excavated only to widths sufficient to provide working space on each side of the pipe for laying, making tight joints and compacting the backfill around the pipes. Trench widths shall conform to the excavation sections shown on the plans or construction details.

Method of Construction

- (g) The Contractor shall sheath and brace the sides of the excavations sufficient for proper support and prevent any movement that could cause injury to the work, adjacent property, utilities and structures.
- (h) Before any pipe is placed in a newly constructed fill, the Contractor shall, as directed, place the filling two (2) feet above the proposed flow line of pipe. A trench shall then be excavated for the placing of pipe.
- (i) Pipes shall be laid under the personal supervision of the Engineer in charge of the work, and are to be evenly bedded on an especially prepared bed shaped to fit the barrel of the pipe. The pipe shall be laid true to the specified lines and grades. The bell end shall be toward the rising grade and each section of pipe shall have a firm bearing throughout its length. Where rock in either ledge or boulder formation is encountered, it shall be removed six (6) inches from any portion of the pipe. Rock excavation shall be done and paid for under **Item 8**.
- (j) In backfilling the Contractor shall use great care in the selection and placing of the fill around the pipe. The fill around the pipe shall be selected earth materials free from frozen lumps and free from stones having a diameter of more than three (3) inches. The fill around the pipes shall be placed by hand shovel and thoroughly compacted with suitable pneumatic rammers or powered hand tampers as fast as placed, up to a level of one (1) foot above the top of the pipe. The remainder of the trench shall be filled and materials compacted by mechanical equipment sufficient to insure against subsequent settlement. No heavy stones or large masses of earth, as from a power machine, shall be dropped into the trench in such a manner as to endanger the pipe. The materials used for backfilling in street trenches, for a depth of one (1) foot above the top of the pipe, shall be selected portions of the excavated materials and shall be, wherever possible, gravel. If directed, the entire material for filling shall consist of gravel. The work shall be watertight, and if within one (1) year after completion, leaks have developed, they shall be repaired at the expense of the Contractor and to the satisfaction of the Engineer.
- (k) Any area that is inaccessible to mobile mechanical equipment or in restricted areas shall be compacted with pneumatic rammers or powered hand tampers.
- (l) Compaction shall be carried on until the density of the material is not less than ninety-five (95) per cent of the Standard Proctor Density as determined by Standard Laboratory Compaction Test. The Contractor shall arrange and pay for and submit to the Engineer results of such tests taken in such number as to indicate a test of every eight hundred (800) square feet of compacted area.
- (m) Upon completion of the work, the Contractor shall thoroughly clean and flush the pipe lines and all pipe lines shall be subject to a inspection by the Contractor and Engineer jointly. Any pipe showing settlement after laying or which is not in true alignment shall be taken up and relaid by the Contractor without additional compensation.

Method of Measurement

- (n) Measurement for payment shall be the horizontal distance measured by the **linear foot** along the pipe in place, and the distance shall run from center of drainage structure to center of drainage structure or to the ends of pipe(s) when pipes do not begin or end at manholes or catch-basins.

Basis of Payment

- (o) Under **Item 23.1** the Contractor will be paid the contract unit price per **linear foot** of ductile iron pipe of the size specified, complete-in-place, including bends, tees, stoppers, wyes, or any other special fittings. The unit price shall include full compensation for all labor, material, tools, equipment and all incidental work necessary to complete the work under these items as shown on the plans, as directed by the Engineer and as specified herein inclusive of the disposal of all excavated surplus material.

SECTION 14**Item 24 – FURNISH & INSTALL A MANHOLE COVER & FRAME**Description

(a) Under **Item 24** the Contractor shall furnish and set covers and frames for manholes as directed by the Engineer and as specified herein.

(b) Deleted

(c) Existing grates and frames and/or existing covers and frames which meet City of Newton standards are to be reset, and no new sets are to be installed until all such existing site materials have been exhausted. Under this item any surplus sets, or component thereof, shall at the direction of the Engineer, be otherwise cleaned, off-loaded, and stockpiled at a City of Newton location.

Materials

(d) Manhole covers and frames shall comply with the directives and dimensions as shown in the City of Newton General Construction Details and shall be castings of first quality gray iron having an ultimate tensile strength of not less than twenty thousand (20,000) pounds per square inch, to which may be added steel to the amount of twenty (20) per cent and shall be castings of such character and weight as to make sound, strong, tough, durable castings of even grain, free from cracks, scales, lumps, blisters, air or sand holes, or other flaws or defects such as welding, burning in, plugging or excessive shrinkage. All manhole covers and frames shall be machined to insure a good fit and to prevent rocking. Specimen bars shall be furnished for testing purposes if required. The design and construction of all street manhole covers and frames shall be such as to safely insure their ability to support the road traffic, the minimum load being considered as one rear wheel of a 20-ton truck or steam roller transmitting a dead load of seven (7) tons, plus thirty (30) per cent for impact, uniformly distributed on any cover or grating. All covers shall be solid covers of flat design, each provided with four (4) one-half (1/2) inch holes for ventilation, with the appropriate word "DRAIN" or "SEWER" OR "WATER" cast in the cover, and shall have a diameter of twenty-four and three-eighths (24 3/8) inches. Covers and frames shall weigh not less than a total of four hundred and eighty (480) pounds. All castings shall be carefully coated over all surfaces with coal-tar pitch varnish composed of the best quality of coal-tar diluted with sufficient oil to make a smooth, tough, durable, tenacious coating which, when the iron is cold, will not have a tendency to become brittle or scale off. In coating the castings the hot dip process shall be used, the casting and the coating material to be heated to a temperature of three hundred (300) degrees F. and the casting immersed in the vat of coating material for five minutes and then drained of all surplus coating material. All castings used shall meet with the above requirements and be subject to the approval of the Engineer.

Method of Construction

(e) Deleted.

(f) Casting for catchbasins and manholes shall be brought to proper grade with a minimum of two courses of hard red brick. Both brick and casting shall be set in full mortar beds true to the lines and grades as directed.

(g) All brick under the frame and cover, or in the repair and/or restoration of existing manholes, shall be the best quality clay sewer brick, of the class known as "Hard Sewer Brick", burned hard entirely through; shall be straight-edged, of compact texture, and regular and uniform in size and shape. Bricks shall be free from stones and pebbles, and free from cracks, checks or fractures extending into the body of the brick in such a manner as to effect their serviceability or strength. Bricks shall have a compressive strength of not less than four thousand (4000) pounds per square inch when tested (on edge) in accordance with the A.S.T.M. Specifications, Serial Designation: C32-24. They may be rejected if they absorb water to the extent of more than twelve (12) per cent of their dry weight after being dried and then immersed in water, in accordance with A.S.T.M. Specifications, Serial Designation: C32-24. Bricks shall be not less than two and one-quarter (2 1/4) by three and three quarters (3 3/4) by eight (8) inches nor more than two and one-half (2 1/2) by four (4) by eight and one-half (8 1/2) inches in size and shall be of rectangular cross-section. They shall have a smooth plane surface on two ends and at least one edge. When struck together, or when struck with a trowel, they shall give a clear ringing sound. Bricks may be rejected upon visual inspection by the Engineer if, in his opinion, they do not comply with these specifications as to size, shape and freedom from visible defects.

(h) Cement concrete block shall conform to Section M4.05.1 of the Commonwealth of Massachusetts Standard Specifications for Highways and bridges, dated 1988; except that all blocks shall be eight (8) inches in width.

(i) Mortar shall consist of cement and sand mixed in the proportion, by volume, of one (1) part cement and two (2) parts sand. Sand shall be clean, sharp, and shall have a gradation common to type known as "Brick Sand". Lime shall not be used.

Basis of Payment

(j) Under **Item 24** the Contractor will be paid the contract unit price for **each** new manhole cover & frame **set**, complete-in-place, including furnishing and setting, and for manhole covers and frames, complete in place, including furnishing and setting, which unit prices shall include full compensation for all labor, materials, tools and equipment and all incidentals necessary to complete the work under these items, as shown on the plans, as shown in the City of Newton General Construction Details, as directed by the Engineer and as specified herein.

SECTION 15**Item 25 - ADJUST A PRE-EXISTING UTILITY CASTING (EXCLUDING GATE BOXES)****Description**

(a) Under **Item 25** any pre-existing utility fixtures such as manholes, catchbasins or any other similarly large utility casting, situated within the limits of the project area(s), shall be adjusted to the final proposed grade after the final grade of the roadway has been established,. The work shall be done in such a manner that during the removal of the casting **no debris falls into the invert** of the structure, and upon restoration of the casting there is no movement and once set the entire assembly is rendered flush and even with the adjacent finished area.

Materials

(b) All brick under the frame and cover, or in the repair and/or restoration of utility structures, shall be the best quality clay sewer brick, of the class known as "Hard Sewer Brick", burned hard entirely through; shall be straight-edged, of compact texture, and regular and uniform in size and shape. Bricks shall be free from stones and pebbles, and free from cracks, checks or fractures extending into the body of the brick in such a manner as to effect their serviceability or strength. Bricks shall have a compressive strength of not less than four thousand (4000) pounds per square inch when tested (on edge) in accordance with the A.S.T.M. Specifications, Serial Designation: C32-24. They may be rejected if they absorb water to the extent of more than twelve (12) per cent of their dry weight after being dried and then immersed in water, in accordance with A.S.T.M. Specifications, Serial Designation: C32-24. Bricks shall be not less than two and one-quarter (2 1/4) by three and three quarters (3 3/4) by eight (8) inches nor more than two and one-half (2 1/2) by four (4) by eight and one-half (8 1/2) inches in size and shall be of rectangular cross-section. They shall have a smooth plane surface on two ends and at least one edge. When struck together, or when struck with a trowel, they shall give a clear ringing sound. Bricks may be rejected upon visual inspection by the Engineer if, in his opinion, they do not comply with these specifications as to size, shape and freedom from visible defects.

(c) Cement concrete block shall conform to Section M4.05.1 of the Commonwealth of Massachusetts Standard Specifications for Highways and bridges, dated 1988; except that all blocks shall be eight (8) inches in width.

(d) Mortar shall consist of cement and sand mixed in the proportion, by volume, of one (1) part cement and two (2) parts sand. Sand shall be clean, sharp, and shall have a gradation common to type known as "Brick Sand". Lime shall not be used.

(e) If the adjusted utility fixture settles or if upon completion of the work the fixture is not even and flush with the adjacent area, or the set causes noise, then the Contractor shall cut out such portions of the existing work as may be necessary to reset the fixtures to the required grade or shall otherwise replace the set in its entirety. The resetting of the fixtures and the replacing of the cut out portions shall be done in a manner satisfactory to the Engineer. All the work done under this paragraph shall be done at the Contractor's own expense except where 'loose cover' noise is the cause of the problem then the City shall only pay for the cost of the new casting set under **Item 21, 22 or Item 23**, whichever is applicable.

Method of Construction

(f) Before any existing frame and grate set, or any frame and cover set is reused, the Contractor is to verify that the existing set is acceptable to the Engineer. If in the opinion of the Engineer the casting set should be replaced then the Contractor is to dispose of that inadequate casting at his own expense and is to replace the casting set with a new unit. The new unit will be paid under **Item 23**.

(g) In areas where the existing surface is to be excavated or reclaimed, and prior to the removal of the castings, the location of the existing castings shall be properly recorded by taking ties in a manner, and on a format, acceptable to the Engineer to whom he shall furnish a copy if so requested. The existing castings shall then be removed and carefully stored by the Contractor. The Contractor shall be held responsible for the protection of the castings and shall not place them alongside the roadway in such a way that the pedestrian and/or vehicular access is impaired.

(h) The masonry shall be removed from the structures to a level below the proposed subgrade or otherwise, **in those cases where a reclamation process is to be performed, the structures will be taken down to a level eighteen inches (18") below the existing roadway surface**. Subsequently the structures shall be covered with three-eighth (3/8) inch steel plates during construction as directed by the Engineer. The castings shall be replaced and set to finished grade only after the binder course of pavement has been laid. All generated debris shall be immediately removed from the site.

(i) During the course of construction the catchbasin structures shall be covered with perforated steel plates which shall be backfilled with an approved crushed stone to allow for continued drainage. All other aspects of the final adjustment procedure shall be as described in **paragraph (e), (f) & (g)** of this section.

(j) The work shall be done in such a manner that during the course of removal no debris falls into the invert of the structure, and upon restoration there will be no movement of the casting after it has been set to the proposed finish grade of the target surface. The Contractor shall immediately remove any debris which falls into any City of Newton owned structure, and shall immediately notify any utility company when debris falls into any privately owned structure. The Contractor is ultimately responsible for the cleaning of any structure which is adversely affected by his operations.

(k) After the castings are set to finished grade the area of excavated pavement around the casting shall be replaced with **four inches (4") bituminous concrete binder**, fully compacted to the full depth of the pavement and **only with an approved pneumatic tamping bit**. **No plate compactors will be allowed during this patching operation**, however, the Contractor must exercise extreme care not to disrupt the grade of the newly set casting.

(l) Any frames, grates or covers damaged or lost during construction shall be replaced by the Contractor at his own expense.

Basis of Payment

(m) Under **Item 24** the Contractor will be paid the contract unit price for **each** pre-existing manhole or catchbasin casting, of any type (exclusive of Gate & Service Boxes), that is removed, and subsequently adjusted to the proposed grade. The unit price shall include full compensation for all labor, materials, tools and equipment and all incidental work necessary to complete the work under these items in accordance with the plans, as directed by the Engineer and as specified herein.

(o) Four inch (4") Bituminous concrete binder used for patching around the casting shall be paid for under **Item 32**.

(p) New castings shall be paid for under **Item 24**.

SECTION W-16

Item 26 - 1" TYPE-K COPPER WATER SERVICE PIPE

SECTION W-17

Item 27 - 1" CORPORATION COCK

Item 28 - 1" CURB STOP WITH BOX

Item 29 - NOMINAL 1"-1 1/2" COUPLING FOR WATER SERVICE PIPE

Description

(a) Under **Items 26, 27, 28 and 29** the Contractor shall furnish all labor, materials, equipment and incidentals required to replace house service connections from water main, including tapping of water mains, to private property boundaries and/or to water meters either as shown on the plans or as otherwise ordered by the City Engineer. The Contractor shall furnish all necessary labor and equipment to excavate the trenches from the water main to the property line, and/or as near to the house foundation as necessary, and/or to the limits as directed by the Engineer, and is to backfill the trenches after the new connection is completed. Trench excavation, removal of existing pipes, and the backfilling shall be done in accordance with all of the applicable sections of these specifications and/or as shown on the plans. **Disposal costs of all unsuitable and/or undesirable material(s) are to be included in these items.**

(b) Corporation cocks, where directed, shall be installed for connecting water services to the water main. Copper tubing, curb cocks, any necessary adapters (which will both vary in size and the manner in which the various components are assembled), as well as bonding jumpers, and all other miscellaneous hardware as required and as approved by the Engineer, shall be used to make connections between new and/or existing corporation cocks and new and/or existing service piping. Unless otherwise directed, the new curb cocks shall be generally located two (2) feet back from the curb line face **but in no case is a compression fitting to be installed within (10) ten feet of a building foundation without also installing a bonding jumper.** The decision to replace an existing curb cock and the location of the installation shall be made in the field by the Engineer. The Contractor shall be responsible for the removal and/or installation of curb cocks in the locations directed by the Engineer.

(c) All existing services shall be maintained until the new service connection has been fully installed to the satisfaction of the Engineer. All service connections shall be made to the mains as specified below. The Contractor shall connect each existing service to the new service connections only after the completed installation has been properly flushed and fully accepted by the Engineer.

(d) In areas where new service connections are installed, straight couplings (which will vary in both size and the manner in which the components are assembled), and all other miscellaneous hardware as required and as approved by the Engineer, shall be used to connect new and/or existing corporation cocks to new and/or existing service piping.

Description (Continued)

(e) Under these items the Contractor is to create and deliver a written notice(s) to each address, and/or is to post notices as otherwise may be directed by the Engineer, at the affected properties at least twenty-four (24) hours in advance of each expected disruption of water service. The notice is to be on a format acceptable to the Engineer and shall contain the time and date of the expected disruption of water service. In addition, the notice is to be placed in a conspicuous location as near to the regular mail delivery as possible such that the notice will be gathered up with the regular mail. The distribution of notices is to further comply with the directives shown on the plans

(f) Under these items the Contractor is to flush all water service pipes prior to making any final connections until such time as the full pressure is restored and all discoloration has dissipated. In addition, upon final connection, the Contractor is to purge air and rust from the water service line by carefully and responsibly opening the sill cock nearest to the water meter.

(g) Under these items, and upon the completion of the installation, but before the backfilling operation commences, the Contractor is to create a dimensional diagram which clearly shows the detail of the installed service system, and the dimensional distance taken from a series of permanent, easily identified surface fixtures. These (tie) dimensions are to be taken to each key component of the installed system in such a way that these components may be easily found at some future date, especially when the area may be snowbound. The diagram, and 'ties' to the system components are to be on a format, and contain information, that is acceptable to the Engineer. All ties are to be delivered to the Engineer at the end of each week to prevent the loss of this critical information.

Materials

(h) Corporation cocks shall be City of Newton standard, conforming to AWWA C-800, as manufactured by Ford Water Service Products.

(i) Curb stops and boxes shall be City of Newton standard, conforming to AWWA C-800, as manufactured by Ford Water Service Products.

(j) Only when allowed by the Engineer service saddles shall be City of Newton standard, conforming to AWWA C-800, model F-1280 as manufactured by Clow, or an approved equal.

(k) **Copper tubing shall be Type "K"**, soft temper, conforming to ASTM B88. The name or trademark of the manufacturer shall be stamped along the pipe.

(l) Adapter couplings for connecting new copper tubing to existing service connections at the property lines and/or at existing corporation cocks shall be City of Newton standard straight coupling fittings conforming to AWWA C-800, as manufactured by Ford Water Service Products, or an approved equal. The size and configuration of these adaptor couplings will vary from service to service and are not standardized.

Method of Construction

(m) Corporation cocks: The tapping machine shall be rigidly fastened to the pipe as near the horizontal diameter as possible. The length of travel of the tap should be so established that when the stop is inserted and tightened with a 14-in. wrench, not more than three threads shall be inserted with the machine while it is still in place. Stops shall be tightened only sufficiently to give watertightness and care must be constantly exercised not to overtighten them.

Method of Construction (Continued)

(n) Straight couplings: The Contractor shall install straight couplings of the sizes required in the locations designated by the Engineer in the field. The Contractor shall utilize the manufacturer's recommended installation procedures while performing the work. Care shall be taken to ensure a watertight connection. The size and configuration of these couplings will vary from service to service and are not standardized.

(o) Curb cocks and boxes will, in most cases, be installed two (2) feet back of the curb line face **but in no case is a compression fitting to be used within (10) ten feet of any building foundation without also installing a bonding jumper**. The Contractor shall install the cocks and boxes in a workmanlike manner as described herein, and as directed by the Engineer, and shall place compacted earth gravel around and below the cock to permit ready draining of the pipe through the waste opening.

(p) The pre-approved boxes shall be set plumb, in a true vertical position. The tops shall be set flush with the adjoining ground

(q) Copper Tubing: Care shall be exercised in the placing and laying of copper tubing to be sure that the pipe does not have kinks or sharp bends, and also to ensure against the tube from being in contact with sharp stones or ledge which would cause damage to the pipe. At least 6-in. of selected fill, containing no stone larger than one (1) inch in diameter, shall be placed adjacent to and above the pipe, and that no large sized stone shall be placed over the pipe until the depth of backfill above the pipe is in excess of 1 ft.. Under certain soil conditions the Engineer may require the Contractor to encase the water service in dense graded crushed stone as shown on the plan or as directed by the Engineer. The installation of dense graded crushed stone or sand bedding shall be paid under **Item 11 or Item 11.1, however no additional compensation shall be made for the removal of excess surplus excavated material.**

(r) Copper Tubing which is either scheduled, or otherwise out of necessity is designated by the Engineer to extend to the water meter, may be 'pulled' depending on the existing soil conditions. The Engineer has the right to order the full excavation should he deem this action necessary in order to safe-guard the long term durability of the copper tube/pipe. In addition, the contractor must perform the 'pulling' operation by a means, and in a manner, which is acceptable to the Engineer. However, in all cases, the Contractor will be ultimately responsible for the satisfactory and leak free installation of the water service tube/pipe regardless of the means and methods of installation.

(s) In those cases where the copper tube has been installed through the foundation wall the contractor is to patch and repair the foundation with cement mortar, and is to clean up all debris, all to the satisfaction of the Engineer.

(t) **Paragraph (f) and (g)** of this specification shall apply.

Method of Measurement

(u) Measurements for payment under **Item 26** shall be the horizontal distance measured by the **linear foot** along the copper service pipe as measured from the center line of the water main to the termination of the pipe at the interception point of existing copper services, or at the property line, or at the curb stop, or to the water meter, whichever is applicable.

(v) **Corporation cocks** will be measured as the **actual number of units** of new corporation cocks installed in the project and accepted by the Engineer.

(w) **Curb stops with boxes** will be measured as the **actual number of units** of curb stops with boxes installed in the project and accepted by the Engineer.

Method of Measurement (Continued)

(x) **Couplings** will be measured as the **actual number of units** installed in the project, and accepted by the Engineer.

Basis of Payment

(y) Under **Item 26** the Contractor will be paid the contract unit price **per linear foot** for furnishing, trenching, laying and the subsequent backfilling of one (1) inch copper tubing water service pipe, complete in place, **inclusive of the excavation and the removal of all unsuitable material(s)**.

(z) Under **Items 27, 28 and 29** the Contractor will be paid the contract unit price for furnishing and installing **each** corporation cock of each size specified, each curb stop and box of each size specified, and each coupling respectively, complete in place.

(aa) Under **Items 26, 27, 28 and 29** the unit prices shall include full compensation for all labor, materials, tools and equipment and all incidentals necessary to complete the work under these items as shown on the plans, as directed by the Engineer, and as specified herein, inclusive of excavation and the disposal of all undesirable material(s), backfilling, taking and submitting as-built ties, and for all operational notifications to both City Agencies and to abutters.

SECTION 18**Item 30 – DUST CONTROL (CHEMICAL TREATMENT)**Description

(a) The Contractor is responsible for all safety aspects associated with the application of the Calcium Chloride which shall be furnished and applied for dust control purposes to the surface of the subgrade, or elsewhere as directed in accordance with these specifications.

Materials

(b) Calcium Chloride shall conform to the requirements of A.A.S.H.T.O. – M144, Type I or Type II.

Method of Construction

(c) Calcium Chloride shall be uniformly applied at the rate of one and one-half (1-1/2) pounds per square yard, or at any other minimal rate which does not jeopardize the safety of the travel way yet serves to control the dust condition(s). Calcium Chloride is to be evenly spread to prevent concentrated areas of Calcium Chloride.

(d) Chemicals are to be strategically applied so as not to track onto adjoining roadways. The Contractor is advised to scrutinize each area on a case by case basis, and apply the chemicals in such a manner that the wheels of the vehicular traffic do not deposit any residual chemicals onto the pavement of any adjoining roadways.

(e) The Contractor shall either arrange for, or otherwise maintain on site, an adequate supply of Calcium Chloride for the purpose of applying it within one hour of a notice to do so upon the direction of the Engineer.

Method of Measurement

(f) Calcium Chloride will be measured by **the pound** and the quantity to be paid for shall be the actual weight of such material furnished and applied, complete-in-place.

Basis of Payment

(g) Under **Item 30** the Contractor will be paid the contract unit price **per pound** for Calcium Chloride for dust control, complete-in-place, which unit price shall be full compensation for all labor, materials, tools, equipment, and all incidental work necessary to complete the work under this item as shown on the plans, as directed by the Engineer, and as specified herein.

SECTION 19**Item 31 - 2" BITUMINOUS CONCRETE FOR TEMPORARY PATCH****Item 32 - 4" TYPE I-1 BITUMINOUS CONCRETE FOR PERMANENT (PATCH)
TRENCH RESURFACING (PLACED IN TWO COURSES)**Description

(a) When directed by the Engineer, trenches and areas disturbed by the Contractor shall be resurfaced with bituminous concrete Type I-1.

(b) When in the judgement of the Engineer, conditions necessitate the installation of temporary resurfacing of the trench, this work shall be done and paid for under **Item 31**. The Contractor is to install temporary resurfacing at the end of every work week or as often as the Engineer may direct as the conditions may warrant. Once installed the temporary resurfacing shall be maintained by the Contractor until the permanent resurfacing is installed, and any settlements, or other trench failures shall be repaired to the satisfaction of the Engineer at the Contractor's own expense.

(c) The Contractor shall continually review and maintain all trenches in order to provide safe and unobstructed passage, at all times, for both vehicular and pedestrian traffic. In addition, all trenches and areas that are permanently resurfaced by the Contractor shall be guaranteed against settlement, upheaval or failure of any kind for a period of one (1) year after the City accepts the work, and he shall replace such resurfacings at his own expense. The City Engineer shall be sole judge as to what constitutes a failure, and which portion of the resurfacing is to be replaced, and his decision shall be final.

(d) After the utility, pipe laying and/or other site improvement work has been completed and tentatively accepted by the City of Newton, permanent trench resurfacing, under **Item 32**, shall be installed in two courses. However, prior to the installation of the four (4) inch permanent patch the Contractor must be certain that all areas are fully compacted to ninety-five (95) percent density from the bottom of the trench to the top. Further, permanent trench resurfacing operations, once begun, are to be carried out without interruption, and in a systematic and responsible manner.....

To that end the Contractor is to coordinate his activities such that the trench area, at the end of the workday, has been excavated, appropriately filled and compacted with designated base materials, bindered and topped, all in one day, in order to provide a seamless operation and to eliminate any surface unevenness between the existing roadway pavement surface and the new trench patch.

Further, all permanent trench patch resurfacing must be installed throughout each independent site and/or project zone before the Contractor will be allowed to begin new construction activities elsewhere.

In addition the Contractor shall closely coordinate his preparation activities and the overlay installation such that the trench- cap overlay is installed directly behind the preparation operation.

Materials

(e) Bituminous concrete shall be Type I-1, mixed and transported as specified in the Commonwealth of Massachusetts Department of Public Works Standard Specifications for Highways and Bridges, dated 1988, Sections 460 and M3.

Method of Construction

- (f) When temporary resurfacing is required, no dense graded crushed stone will be placed in the trench. The trench shall be brought to a grade one and one-half (1-1/2) inches to two (2) inches below the existing pavement with gravel thoroughly compacted and subsequently topped with a one and one-half (1-1/2) inch to two (2) inch depth of bituminous concrete. The depth of temporary patch shall be as directed by the Engineer, but in no case shall exceed two (2) inches in depth.
- (g) The temporary bituminous concrete shall be laid, compacted and finished in accordance with the Engineer's directions, and as often as he shall direct regardless of the quantity.
- (h) When replacing the temporary resurfacing with permanent resurfacing, the existing edge of the previously sawcut pavement shall not be damaged and sufficient gravel shall be excavated to such depths as to accommodate the prescribed depths of bituminous concrete, gravel and dense graded crushed stone courses..
- (i) Under **Item 32** Type I-1 bituminous concrete for permanent trench resurfacing shall be laid on a gravel and dense graded crushed stone base built under **Item 11 or Item 12**, whichever is applicable. The depth of the four (4") depth permanent bituminous concrete pavement shall be laid in two courses. The first course shall be two and one half (2 1/2) inches of Type I-1 binder, compacted with a vibratory plate compactor having a manufacturers rating plate attached at the factory to confirm the unit is capable of generating a centrifugal force of no less than six thousand (6000) pounds and such binder material is to be placed upon eight (8) inches of gravel topped with a maximum four (4) inches of dense graded crushed stone, however the depths of the base materials shall only be installed as pre-approved by the Engineer. The second course shall be one and half (1 1/2) inches of Type I-1 top applied in the conventional manner.
- (j) The bituminous concrete, for full width permanent roadway pavement(s), or the final top applied to the permanent patch trench sections that have been previously bindered, shall be spread with a mechanical spreader of the self powered type having a floating screed assembly controlling the elevation of the strike-off. The screed or strike-off member shall be adjustable to the shape of the cross-section of the finished pavement and shall be of such design as to produce without tearing, shoving or gouging, a finished surface of the evenness and texture desired. The use of road graders, or towed spreaders, shall not be allowed. If, in the opinion of the Engineer, the spreading and finishing equipment is not providing satisfactory results, he shall order the use of such equipment be discontinued and other satisfactory spreading and finishing equipment shall be provided by the Contractor. Hand spreading may be used in places inaccessible to the machine and when permitted by the Engineer. When hand spreading is permitted, the mixture shall be dumped, upon arrival, on approved steel dump sheets outside the area in which it is to be spread and shall then immediately laid to the required depth.
- (k) The Engineer may at any time order the use of side forms which shall be of a type subject to his approval. The forms shall be set so that the finished pavement shall be at a true line and grade as determined by the Engineer. The Engineer may in lieu of forms order the use of iron pins with grade marked thereon, so placed that they will not interfere with the travel of the machine spreader, but close enough so that a short straight edge placed on the newly laid pavement can reach a string line tied from pin to pin, and afford a visual check on the thickness of the newly laid pavement. The Engineer may order the pins to be used on the base, binder, or top courses. All expenses involved in the use of pins including the furnishing of such iron pins shall be borne by the Contractor.

Method of Construction (Continued)

- (l) The bituminous concrete must be kept clean during hauling and handling and covered during transit with canvas or other material which will retain the desired pavement temperature. These mixtures must not be hauled in such a manner that segregation of the ingredients takes place, or that a crust is formed on the surface, or that the mixture will crumble or flatten out when dumped. Trucks which transport the mixture shall be tight, and the side of the bodies shall be coated with a thin film of soap solution. The dispatching of trucks from the distribution point shall be so arranged that all the material which is to be delivered at or on the road surface during any day may be placed and shall have received final compression in a continuous manner in order to minimize cold seaming.
- (m) The bituminous concrete mixture shall be delivered to the work in such condition that it is easily workable and can be efficiently laid. The mixture shall be laid only on an approved base course which is dry and only when weather conditions are suitable which shall be decided by the Engineer.
- (n) Under **Item 32** the permanent bituminous concrete shall only be applied in bright sunlight or partly cloudy weather without the threat of rain. The Contractor is not to schedule and/or apply any bituminous concrete, whose end use is for permanent installation(s), unless such favorable weather conditions are professionally forecast by a recognized weather agency, and at the request of the Engineer, this forecast shall be filed with Engineer in hard-copy form. Further, no bituminous concrete shall be applied upon a residually wet surface, and no bituminous concrete which has been prematurely cooled by rain, either on the roadway or on the truck, will be accepted.
- (o) The temperature of the mixture to be laid shall be between two hundred and twenty-five (225) degrees Fahrenheit and three hundred and twenty-five (325) degrees Fahrenheit and no mixture shall be placed when the air temperature in the shade and away from artificial heat is forty (40) degrees Fahrenheit or less. Variation from these temperatures may be permitted only on written permission of the Engineer.
- (p) The edge of the asphalt mixture adjacent to rigid curb lines, around manholes, or other solid fixtures or where no shoulder is constructed, shall be hand tamped before being rolled.
- (q) The bituminous concrete shall be laid in the prescribed number of courses as shown on the plans or as determined by the Engineer. All depths of courses shall mean the finished depths after rolling. All courses must be laid so that they will have the required thickness and be parallel to the proposed finished grade of the surface.
- (r) After the paving mixture has been properly spread it shall be thoroughly and uniformly compressed by rolling with power rollers. On projects involving less than one hundred and fifty (150) tons of paving mixture per day one (1) tandem roller of not less than ten (10) tons shall be used. On projects using more than one hundred and fifty (150) tons but less than three hundred and fifty (350) tons two (2) rollers shall be required with one (1) additional roller for each two hundred (200) tons of mixture per day thereafter. A day shall be construed as eight (8) hours working time. If, in the opinion of the Engineer, satisfactory compaction is not obtained by rolling with a tandem roller, the Engineer may order the rolling to be done with ten (10) to twelve (12) ton three (3) wheeled roller with wheels not less than twenty-four (24) inches wide. All rollers used shall weigh at least two hundred and fifty (250) pounds per inch width of tread. Each roller shall be in charge of a competent, experienced roller operator and shall be kept in a nearly continuous operation as practical while the work is under way. Rolling shall be continued and so executed that all roller marks, ridges, porous spots and impressions are eliminated, and the resulting surface has the required grade and contour. Rolling shall proceed at a rate not to exceed two hundred and fifty (250) square yards per hour, per roller. To prevent adhesion of the mixture to the roller the wheels shall be kept properly moistened but excess water or oil will not be permitted. Along forms, curb headers and similar structures and all places not accessible with a roller, the mixture shall be thoroughly compacted by tampers. Such tampers shall weigh not less than twenty-five (25) pounds and shall have a tamping face of not more than fifty (50) square inches.

Method of Construction (Continued)

The surface of the mixture after compressing shall be smooth and true to the established crown and grade. Any mixture which becomes loose and broken, mixed with dirt or in any way defective shall be removed and replaced with fresh mixture, which shall be immediately compacted to conform with the surrounding area. Areas of one (1) square foot or more showing an excess of bitumen shall be removed and replaced.

(s) The densities of the completed pavement shall be not less than ninety-two (92) percent of the calculated density of a voidless mixture composed of the same materials in like proportions. After final compression, samples will be taken from the completed pavements and when tested by standard laboratory methods shall show compliance with aforesaid density requirement.

(t) Placing of the mixture shall be as nearly continuous as possible and the roller shall pass over the unprotected end of the freshly laid mixture only when the laying of the course is to be discontinued for such length of time as would permit the mixture to attain initial stability. In all such cases, including the formation of joints as hereinafter specified, provisions shall be made for proper bond with the new surface for the full specified depth of the courses. Transverse joints shall be formed by cutting back on the previous days run so as to expose the full depth of the course. When the laying of the course is resumed, the exposed edge of the joint shall be painted with a thin coat of hot asphalt cement and the fresh mixture shall be raked against the joint. Hot smoothers or tampers shall be carefully employed in such a manner as to heat the old pavement sufficiently, without burning it, to insure proper bond and then rolled. The work of setting up or making these joints shall be performed by competent workmen who are capable of making a correct, clean and neat joint.

(u) The lengths of lanes or strips of bituminous concrete in the base, binder and top courses shall be under control of the Engineer at all times. The Contractor shall lay such lengths as approved by the Engineer and then lay all adjacent strips to the full width of the roadway before being allowed to proceed ahead with other lanes. The practice of laying lanes of bituminous concrete for such lengths that an unduly long period of time elapses before laying adjacent lanes shall not be allowed.

(v) The finished surface shall present an even texture free from blemishes, ridge marks or imperfect spots and it shall be true as to line and grade. When tested with a sixteen (16) foot straight edge placed parallel with the center line of the surface course there shall be no deviation from a true surface in excess of one-quarter ($1/4$) of an inch. A ten (10) foot straight edge may be used on vertical curves. If any soft or imperfect places or spots develop in the surface, all such places shall be removed and replaced with new material and then rolled until the edges at which the new work connects with the old becomes invisible. All such removal and replacement of unsatisfactory surfacing shall be done by the Contractor without additional compensation.

(w) The edges of the permanently resurfaced trenches (where the new bituminous concrete meets the existing pavement) shall be sealed with bitumen and lightly backsanded, as directed by the Engineer. Bitumen used for sealing shall be RS-1 emulsion or other approved bitumen.

Method of Measurement

(x) Measurements taken for payment under **Item 31** shall be by the **ton** of bituminous concrete actually used. The Contractor shall furnish the Engineer with receipts from the plant showing the weight of each load of bituminous concrete furnished and placed, however the Engineer reserves the right to adjust payment in the event the volume of material is either not entirely used or the shipment has arrived on the site as already partially used.

(y) Measurements taken for payment under **Item 32** shall be by the **ton** of bituminous concrete actually used complete-in-place, and shall be taken to limits as pre-approved by the Engineer. Areas disturbed by the Contractor beyond these limits shall be paved, but shall not be measured for payment. The sealing operation described in **paragraph (w)** above shall be included in the measurement for payment. The Contractor shall furnish the Engineer with receipts from the plant showing the weight of each load of bituminous concrete furnished and placed, however the Engineer reserves the right to adjust payment in the event the volume of material is either not entirely used or the shipment has arrived on the site as already partially used.

Basis of Payment

(z) Under **Item 31** the Contractor will be paid the contract unit price **per ton** for bituminous concrete Type I-1 for temporary trench resurfacing, complete-in-place, which unit price shall include full compensation for all excavation of undesirable material, and the disposal thereof, and for all labor, materials, tools and equipment, and all incidentals necessary to complete the work under this item in accordance with the plans, as directed by the Engineer and as specified herein.

(aa) Under **Item 32** the Contractor will be paid the contract unit price **per ton** for bituminous concrete Type I-1 used for permanent 'patch' trench resurfacing, complete-in-place, which unit price shall include full compensation for all excavation of undesirable material, and the disposal thereof, in addition to all labor and materials, and for all tools and equipment and all incidentals necessary to complete the work under this item in accordance with the plans, as directed by the Engineer and as specified herein.

(ab) Gravel and/or dense graded crushed stone used to build the base for Permanent trench resurfacing shall be paid for under **Item 11 or Item 12**, whichever is applicable, however the Engineer reserves the right to limit the use of either of these elements in the event the existing material is deemed to be adequate for this end-use.

SECTION 20**Item 33 – CEMENT CONCRETE WITH LAMPBLACK (@ 2 POUNDS/CY) FOR PANEL REPAIR**Description

(a) All cement concrete walks and/or driveway aprons and/or cement concrete driveways on private lands, in whole or in part, that are necessarily disturbed under this contract, or any additional adjacent walkway and/or driveway apron areas which are deemed to be deficient by the Engineer, shall be neatly sawcut along the nearest joint as determined by the Engineer, and shall be subsequently rebuilt so that they meet the proposed line and grade of the adjacent existing walks in a manner satisfactory to the Engineer.

(b) Excavation shall be done and paid for under these items.

(c) The base for the cement concrete walks and/or driveway aprons shall consist of a six (6) inch gravel base course and a two (2) inch course of dense graded crushed stone. Dimensions shall mean the finished compacted depth. The width of the walk shall typically be five (5) feet unless other widths are called for on the plans or by the Engineer. The width of the driveway apron shall typically be eight (8) feet unless other widths are called for on the plans or by the Engineer.

Materials

(d) Cement concrete shall be of an air entrained type conforming to the current specifications of Section M4 of the Massachusetts Standard Specifications for Highways and Bridges supplement of June 19, 1985. Cement concrete shall have a 28 day compressive strength of 4000 PSI using 3/4 inch aggregate, and with an entrained air content of 7.0 + 1.0%.

ADD MIXTURES: Ordinary or emulsified carbon black - **2 pounds per cubic yard**, unless otherwise directed by the Engineer.

Upon delivery of each and every concrete mix, the Engineer shall be furnished with a slip clearly stating the design mix and the quantities of the above mentioned add mixture, and any other add mixtures present in the mix. Any concrete mix, which when tested on the job site is found to contain quantities of entrained air less than six (6) or more than eight (8) per cent or which yields a slump of less than three (3) inches or greater than five (5) inches shall be rejected, the decision of the Engineer shall be final. The Engineer reserves the right to change the above mix in order to meet the required strength test.

(e) All concrete shall be transit mix and shall conform to the current specifications of A.S.T.M. C-94. Hand mix concrete or machine mixed on the job concrete shall be used only when permitted by the City Engineer in writing.

(f) Premoulded asphalt expansion joints shall conform to the requirements of AASHTO Designation M33.

(g) The walks and/or driveway aprons shall be neatly sawcut along the nearest practical score line and/or to any other limit as directed by the Engineer. Walks and aprons shall then be excavated and subsequently filled to a subgrade twelve (12) inches below and parallel to the finished grade, as shown on the plans, or as directed by the Engineer, or as specified herein.

Method of Construction

(h) Upon the prepared subbase, the gravel and dense graded crushed stone base course shall be constructed and rolled with rollers weighing not less than three (3) tons and not more than five (5) tons until the surface presents a firm unyielding surface satisfactory to the Engineer.

(i) Any area that is inaccessible to mobile mechanical equipment or in restricted areas shall be compacted with pneumatic rammers or powered hand tampers.

(j) Compaction of the sub-base material(s) shall be carried on until the density of the material is not less than ninety-five (95) per cent of the Standard Proctor Density as determined by Standard Laboratory Compaction Test. If the Engineer deems it necessary the Contractor shall arrange and pay for and submit to the Engineer results of such tests taken in such number as to indicate a test of every eight hundred (800) square feet of compacted area, however the Contractor will always be solely responsible for the structural integrity of the sub-base materials and for full compliance with the stipulated compaction requirement(s).

(k) All concrete walks and drive aprons shall be constructed with the use of side forms. The forms shall be clean, smooth and free from warp. Forms for straight concrete walks shall be two by fours (2"X 4"'s) and for driveway aprons forms shall be two by sixes (2"X 6"'s) staked at intervals no greater than four (4) feet, forms for curved sections of concrete walks shall be four (4) inch strapping staked as directed by the Engineer, but in no case at intervals greater than four (4) feet. The forms shall be thoroughly braced and set to the proposed line and grade.

(l) Sidewalks and driveway aprons shall be constructed in one (1) course having a total finished depth of cement concrete that is four (4) inches in depth for walkways or six (6) inches in depth for driveway aprons . Top or wearing courses shall not be permitted.

(m) The end of every pour shall end at joints. Fresh concrete will not be allowed to be placed against previously laid concrete which has attained its initial set, excepting at full vertical joints.

(n) The walks shall be blocked out in rectangular sections measuring not more than six (6) feet in any dimension and no transverse joint for drive aprons shall be spaced more than six (6) feet apart. Transverse joints for a distance of twenty (20) feet, more or less, shall be dummy joints with an approved edging tool which shall score the joints a minimum of one (1) inch in depth. The concrete walks shall be placed in alternate slabs twenty (20) feet, more or less, in length. The slabs for walks shall be separated by transverse premoulded asphalt expansion joints one-half (1/2) inch in thickness and a depth of not less than the full thickness of the walk set at right angles to the walk and to the side forms, in addition a transverse premoulded asphalt expansion joint shall be placed where the four inch walk . No finishing operation shall be performed while free water is present. Finishing operations shall be delayed until all bled water and water sheen has left the surface and the concrete has started to stiffen. After water sheen has disappeared, edging operations where required shall be completed. After edging and jointing operations, the surface shall be floated with either aluminum or magnesium floats. Immediately following floating, the surface shall be steel-troweled. If necessary, tooled joints and edges shall be rerun before and after troweling to maintain uniformity. After troweling, the surface shall be brushed by drawing a soft-bristled pushbroom with a long handle over the surface of the concrete to produce a nonslip surface. In conveying the concrete from the place of mixing to the place of deposit, the operation shall be conducted in such a manner that no mortar will be lost, and the concrete shall be so handled that the concrete will be of uniform composition throughout, showing neither excess nor lack of mortar in any one place.

(o) Premoulded asphalt expansion joints shall be placed adjacent to or around existing curb, walks, buildings and other structures designated by the Engineer.

Method of Construction (Continued)

(p) No concrete shall be placed on a frozen subbase nor shall concrete be poured when the air temperature is thirty-three (33) degrees Fahrenheit and falling, unless permitted by the Engineer, in which case the adequate means for the protection of the concrete must be provided for. No salt or other unauthorized admixtures shall be used. When completed, the newly laid concrete shall be protected from all traffic and the weather for a period of three (3) days. The Concrete shall be cured by spraying with an approved curing compound of a recognized brand applied in accordance with the manufacturer's instructions.

(q) This item shall also apply to cement concrete walks and/or concrete driveways on private lands that have to be rebuilt to meet the proposed line and grade.

(r) All water service boxes, and/or any other service box, and/or any handhole, which falls within the walk and/or driveway apron area is to be raised such that the top plane of the utility cover shall be set flush with the finished sidewalk surface, and such work shall be carried out to the satisfaction of the Engineer.

(s) In those cases where 'frozen' water service boxes are encountered the Contractor is to bring these special cases immediately to the attention of the Engineer, and upon his order to do so, the Contractor shall either remedy the situation by a means which is acceptable to the Engineer or shall otherwise retrieve corrective materials from the City of Newton Utility, and subsequently install them to the satisfaction of the Engineer.

Method of Measurement

(t) **Cement concrete walks**, or portions thereof, shall be measured for payment by the **cubic yard**.

(u) **Cement concrete driveway aprons**, or portions thereof, shall be measured for payment by the **cubic yard**.

Basis of Payment

(v) Under **Item 33** the Contractor will be paid the contract unit price per cubic yard for the cement concrete walks and/or driveway aprons complete-in-place, including the premoulded asphalt expansion joints, the raising of all service boxes to the finished grade, and for the excavation and the disposal of all undesirable material(s). The unit price shall include full compensation for all labor, materials, tools and equipment and all incidentals necessary to complete the work under this item as shown on the plans, as directed by the Engineer and as specified herein.

(w) Gravel and/or dense graded crushed stone used to build the base for base shall be paid for under **Item 11 or Item 12**, whichever is applicable, however the Engineer reserves the right to limit the use of either of these elements in the event the existing material is deemed to be adequate for this end-use.

SECTION 21**Item 34 - LOAM BORDER & LAWN RESTORATION**Description

(a) Loam borders shall be built between the inside edge of the curbing and the edge of the sidewalk in locations shown on the plans or designated by the Engineer, and/or lawns (either public or private) shall be rebuilt under this item. **The depth of the loam shall be six (6) inches measured in its finished state.** The finished grade of the loam border shall be such that the edges of the loam border and the sidewalk shall meet flush and at the same grade after rolling. The same shall apply on the inside edge of the curb.

Materials

(b) Loam shall be clear, rich, dark colored loam friable, reasonably well supplied with plant food, free from excess swamp muck, peat, clay, silt, stones, sods, roots, gravel, sand, subsoil or other foreign material. All loam furnished for this work shall be approved by the Engineer.

(c) Limestone shall be ground limestone that will pass a No. 20 sieve, and at least seventy-five (75) per cent will pass a No. 100 Sieve. Ground limestone shall have a neutralizing value satisfactory to the Engineer.

(d) Fertilizer shall be furnished in containers plainly marked with the chemical analysis of the product and it shall have one of the following compositions by weight.

	10-6-4	8-6-4	7-7-7
Nitrogen	10% min.	8% min.	7% min.
Available Potash Acid (P ₂ O ₅)	6% min.	6% min.	7% min.
Water Soluble Potash (K ₂ O)	4% min.	4% min.	7% min.

At least fifty (50) per cent by weight of the nitrogen content of the fertilizer shall be derived from organic materials.

(e) Grass seed shall be of the previous year's crop and in no case shall the weed seed content exceed one (1) per cent by weight. Grass seed shall conform to the requirements of the following table:

	Proportion	Germination Minimum	Purity Minimum
Creeping Red Fescue	50%	85%	95%
Kentucky Blue	25%	85%	90%
Domestic Rye	10%	90%	98%
Red Top	10%	85%	92%
Ladino Clover	5%	85%	96%

(f) The several varieties of seed shall be furnished and delivered separately, and mixed after delivery as directed by the Engineer.

(g) The responsibility for satisfactory results shall rest entirely with the Contractor regardless of any tentative approval given by the Engineer.

Method of Construction

(h) The loam borders shall be excavated to subgrade six (6) inches below and parallel to the finished grade. Loam shall then be spread on the subgrade in sufficient quantities to produce without rolling and after material settlement has taken place, a depth of four (4) inches. On this layer of loam ground limestone shall be spread at the rate of one-half (1/2) pound per square yard and thoroughly incorporated into the loam for the total depth, by harrowing or spading and raking. The surface shall be brought smoothly to a grade parallel to the finished grade.

(i) The second layer of loam shall then be spread in sufficient quantities to produce after final rolling the required finished depth. At least five (5) days shall elapse after the application of the ground limestone, and then fertilizer shall be spread on the top layer of loam at the rate of two tenths (2/10) of a pound per square yard. The full depth of the loam shall then be spaded, harrowed and graded to the finished grade.

(j) After the grass plots have been prepared as described above, grass seed shall be carefully and appropriately sown at the rate of three and six tenths (3 6/10) pounds to each one hundred (100) square yards. The surface shall then be raked until the grass seed is thoroughly covered with a thin layer of loam. Finally the surface shall be rolled with a hand roller weighing not more than one hundred (100) pounds per foot of width.

(k) The Contractor shall insure a good catch of grass and shall be responsible for the first cutting of the grass. He shall maintain seeded areas during construction and he shall reloam, regrade and reseed any area which in the opinion of the Engineer requires such.

Method of Measurement

(l) Measurements taken for payment shall be by the **square yard** of the finished work, complete-in-place.

Basis of Payment

(m) Under **Item 34** the Contractor will be paid the contract unit price per **square yard** for loam borders and/or lawns (either public or private), complete-in-place, which unit price shall include full compensation for all labor, materials, tools and equipment and all incidentals necessary to complete the work under this item in accordance with the plans, as directed by the Engineer and as specified herein, inclusive of the raising of service boxes to the finished grade.

SECTION 22**Item 35 – MATERIALS TESTING ALLOWANCE****Description**

(a) The Contractor shall include in his bid an allowance of **five hundred dollars (\$500.00)** for cylinders and for other tests conducted in the field and/or the laboratory as required by the Engineer for the control of the concrete, reclaimed pavement material, bituminous concrete pavement, or for any other material.

(b) The City will reimburse the Contractor the full amount of the material testing services provided when approved by the Engineer. The Contractor is required to submit to the City Engineer copies of evidence of payment.

Basis of Payment

(c) Under **Item 35** the Contractor will be paid the full invoice amount for approved and/or authorized material testing services conducted by an independent and qualified laboratory . **Under no circumstances will the City of Newton pay for any testing procedures which unreasonably exceed accepted industry standards (based upon three (3) additional independent quotes for similar testing procedures).**

SECTION 23**Item 36 - MISCELLANEOUS WORK ALLOWANCE (ENGINEERS DISCRETION)****Description**

The work of this section is to complete certain items of work which are not called for under the specifications or indicated on the plans but which are done at the special request of the Engineer. These items of work shall be completed only when and as directed by the Engineer. The Contractor may not proceed with any work under this section without the written notice of the Engineer to complete the work under the "Miscellaneous Work Allowance".

The sum to be allowed for the work of this item shall be **two thousand dollars (\$2,000.00)**.

All work under this item shall be paid for by one or more or a combination of the following methods at the City's discretion.

- a. Unit prices previously bid.
- b. An agreed lump sum.
- c. The actual cost of:
 1. Labor, including foremen;
 2. materials entering permanently into the work;
 3. the ownership or rental cost of construction plant and equipment during the time of use on the extra work;
 4. power and consumable supplies for the operation of power equipment;
 5. insurance;
 6. social security and old age and unemployment benefits.

To the cost under c. there shall be added a fixed fee to be agreed upon but not to exceed fifteen per cent (15%) of the actual cost of the work. The fee shall be compensation to cover the cost of supervision, overhead, bond, profit and any other general expense.

The City shall retain a cash credit in full or in part, in the event that the final cost of materials and/or equipment is lower than the original cash allowance provided.

To the estimated cost or actual cost under (c) for work performed by subcontractors, there shall be added a fixed fee of ten per cent (10%) as compensation to cover the subcontractor's cost of supervision, overhead, profit and any other subcontract general expense, plus ten per cent (10%) as compensation to cover the General Contractor's cost of supervision, overhead, profit, bond and any other general expenses.

Basis of Payment

Payment for work completed under **Item 36** shall be as specified above, in full or in part, as approved by the Engineer.

SECTION 24**Item 37 – ALLOWANCE FOR PAYMENT OF POLICE OFFICERS****Description**

- (a) The Contractor shall include in his bid an allowance of **four thousand dollars (\$4,000.00)** for payment of Police traffic officers. This allowance will be used as a basis for comparison of bids only.
- (b) The City will reimburse the Contractor for the full amount of charges for Police services.
- (c) **Article 1** of the Special Conditions of the Contract shall apply.
- (d) Under this item the Contractor shall be responsible for ordering, and for cancelling details on a day to day basis. In the event the Contractor has ordered police details, and does not give the police department ample advance notice that work has been cancelled for that day due to inclement weather or for any other reason, then the Contractor shall bear the expense of that billed detail.
- (e) The Contractor shall completely familiarize himself with the current policies regarding and/or regulating police details. In the event police detail requests cannot be completely filled to cover the Contractor's scheduled work for any particular day then the Contractor shall adjust his work schedule accordingly and shall not hold the City responsible for any loss of time, or for any other financial loss. The City of Newton will however grant an extension of time to the original contract term for each day lost due to insufficient police staffing.

Basis of Payment

- (f) Under **Item 37** the Contractor shall submit paid invoices to the Engineer. The Contractor shall then be **reimbursed the full invoice amount** for City of Newton Police Department charges and/or, when applicable, for Massachusetts State Police charges, as full reimbursement under the allowance for payment of Police officers.
- (g) The original invoice issued by the billing authority must be submitted to the Engineer for payment under this item.
- (h) Scheduling and coordination of Police Officers will be paid for under **Item 1**.

SECTION 25**Item 38 – WARNING AND/OR SAFETY DEVICES FOR THE CONTROL OF CONSTRUCTION OPERATIONS****Description**

(a) Work under this section consists of providing, positioning, repositioning and maintaining various traffic control devices, inclusive of the 'RC' or 'D' Type drum devices, for the guiding and safety of the traveling public, and for the safety of the working personnel during construction and maintenance operations, and includes channelizing, barricades, detouring and other warning devices, as directed by the Engineer, and/or as requested by the Police Detail Officer, and/or as shown on the plans.

(b) Under this item the Contractor is solely responsible for all safety aspects of the Contract subject to the Provisions of **Article 14** of the General Conditions of the Contract.

Materials

(c) Drums shall be Type IV reflectorized in their entire white and orange areas with reflective sheeting. Barricades along with non-metallic reflectorized drums shall conform to Section M9 of the Mass. DPW Standard Specifications for Highways and Bridges. Newly developed products providing equivalent target value and stability that are approved by the Massachusetts Highway Department may be used. All barricades and drums shall be maintained in a satisfactory manner, including the removal of dirt or road film that causes a reduction in sign reflective efficiency.

(d) Each barricade and drum used for warning or channelizing at night shall be equipped with a flashing light. All devices that are not lighted at dusk shall be repaired or replaced.

(e) Materials required under this section need not be new, but must be in first class condition and acceptable to the Engineer. Any materials, that in the judgement of the Engineer, are unsatisfactory in appearance and/or performance, shall be removed and immediately replaced by acceptable units. However, the Contractor is solely responsible to monitor and verify the conditions of the materials, and to take immediate action to remedy any deficiencies otherwise brought to his attention.

(f) Signs for Type 'RC' and 'D' devices are to comply with all applicable provisions of **Section 26**.

Method of Construction

(g) All warning and directional devices shall be subject to removal, replacement and/or repositioning as often as is necessary. Deployment of such devices shall be the sole responsibility of the Contractor, therefore ample number of devices must be maintained at all times and at no time shall vehicular or pedestrian traffic be a cause for concern.

(h) The Contractor is to work closely with the Safety Officer of their insurance agent to determine, and establish, on an ongoing systematic basis, as the construction operations progress, the number of reflectorized devices that are needed in order to eliminate any and all potential safety hazards to the general public.

(i) Cones of non-reflectorized warning devices shall not be left in operating position when the day's operations have ceased.

Method of Construction (Continued)

(j) All signs mounted on Type 'RC' and 'D' type devices are to be turned away from traffic at days end when no longer in use.

Method of Measurement

(k) The Engineer shall make **percentage payments** as he deems appropriate during the course of these activities.

Basis of Payment

(l) The contract **lump sum** price under **Item 38** shall constitute full payment for all materials, labor and equipment required or incidental to the work described above and/or as shown on the plans. Any devices which are lost, stolen, destroyed, or deemed unacceptable while their use is required on the project shall be replaced without additional compensation.

(m) Signboards for Type 'RC' and Type 'D' drum devices will be paid under **Section 26 Item 39**.

SECTION 26**Item 39 – FURNISH & MOUNT SAFETY & SPECIALTY SIGNBOARDS
(INCLUDING THE POST SYSTEM)****Description**

- (a) Safety and specialty signboards shall be placed, as directed by the Engineer, and/or as described in the City of Newton “General Construction Details” and/or as shown on the plans. The Contractor is not to order any signboards until he has coordinated this effort with the Engineer in order to identify the maximum number, and various types of signboards, that should be contained in the initial sign making order as every new signboard, once delivered, is to be reused. The Contractor is to order new signboards as the Engineer may further direct as the construction activities progress, however, no payment will be made for any new signboard which is damaged or lost. Damaged or lost signs are to be replaced at the Contractors own expense.
- (b) When scope of the project involves multiple site locations signboards and posts are to follow the construction progress, being moved from zone to zone, with signboards and posts being the first mobilization element to be established throughout each project zone before any other construction activity takes place within that particular zone.
- (c) Specialty signboards, bearing unique messages, shall be fabricated by special order of the Engineer to address any and all site specific informational requirements.
- (d) Once established, all signboards and/or post systems are to be maintained for the duration of the construction activities. Any damaged signboards and/or post systems are to be immediately replaced at the Contractors own expense without any additional compensation.

Materials

- (e) Plywood signboards panels shall be fabricated from ¾” thick medium Density Overlaid (MDO) Exterior Type, A-B both sides surface in natural color and the whole conforming with the requirements and tests for the above as set forth in U.S. Products Standards PSI-74 for Construction and Industrial Plywood. All plywood shall bear the grade trademark of an approved testing agency. The entire area of the signs shall be reflectorized with the reflective sheeting conforming to Section M9.30.0 of the Commonwealth of Massachusetts, Standard Specification for Highway and Bridges, dated 1988. All applicable portions of Sections 828 and 840 of the aforementioned specifications shall also apply.
- (f) Posts shall be constructed of sturdy material(s) and adequately installed so as to withstand ninety (90) mile an hour sustained winds when the respective sign is mounted in place. No payment will be made for posts, and/or support systems, which do not clearly meet this criteria. No additional payment will be made to replace any damaged post systems.

Method of Construction

- (g) All signboards shall be fastened in the manner described in the Construction Details, and/or as shown on the plans, or as directed by the Engineer.

Method of Construction (Continued)

(h) The Contractor shall be responsible for maintaining all signboards and posts for the duration of the contract and all signs and/or posts damaged or lost during construction shall be replaced by the Contractor at his own expense.

(i) Upon completion of the Contract, all safety and specialty signboards shall become the property of the City of Newton. Signboards shall be delivered by the Contractor to a City location designated by the Engineer, where the Contractor is to neatly stockpile the signboards. The City reserves the right to limit the number of signs it receives, and to further pick and choose which signs are to be delivered to the City of Newton. In the event the City has no desire to take control of the signs, then the Contractor is to dispose of them as he so chooses, however, in no case is any sign to be discarded in this manner until such time a the Engineer authorizes its release.

Method of Measurement

(j) Measurement for payment of **signboards with the post system** and/or the mounting effort, shall be based upon the **square foot of surface area for each new and professionally made signboard**. No additional payment will be made for field made signboards which are ordered by the Engineer and which bear a temporary hand-written message.

Basis of Payment

(k) Under **Item 39** the Contractor will be paid the contract unit price per square foot for a professionally made safety and specialty signboard, complete-in-place (inclusive of the post system), which has been authorized by the Engineer. The express intent, under this item is to re-use the signboards, **moving the signboards from project zone to project zone as the construction operation progress, without any further additional compensation**. Under this item the unit price shall include full compensation for all labor, materials, tools and equipment and all incidentals necessary to complete the work under this item, as shown on the plans, as directed by the Engineer and as specified herein. No additional payment will be made for signs and/or sign post systems which are damaged, lost, stolen and which are required to be replaced.

END OF SPECIAL PROVISIONS



City of Newton

Massachusetts 02459

Engineering Division

Phone (617) 796-1020

FAX (617) 796-1051

Permit Number _____

Date Issued _____

Expiration Date _____

Fee: \$50 x _____ = _____
Trenches Total

TRENCH
Pursuant to
et seq.(as

PERMIT
G.L. c. 82A §1 and 520 CMR 7.00
amended)

THIS PERMIT MUST BE FULLY COMPLETED PRIOR TO CONSIDERATION

Name of Applicant			Phone		Cell	
Street Address						
City/Town	MA	ZIP				
Name of Excavator (if different from applicant)			Phone		Cell	
Street Address						
City/Town	MA	ZIP				
Name of Owner(s) of Property			Phone		Cell	
Street Address						
City/Town	MA	ZIP				
Other Contact			Permit Fee Received No () Yes ()			
Description, location and purpose of proposed trench: Please describe the exact location of the proposed trench and its purpose (include a description of what is (or is intended) to be laid in proposed trench (eg; pipes/cable lines etc..)) Please use reverse side if additional space is needed.						
Insurance Certificate #:						
Name and Contact Information of Insurer:						
Policy Expiration Date:						
Dig Safe #:						
Name of Competent Person (as defined by 520 CMR 7.02):						
Massachusetts Hoisting License #						
License Grade:			Expiration Date:			

BY SIGNING THIS FORM, THE APPLICANT, OWNER, AND EXCAVATOR ALL ACKNOWLEDGE AND CERTIFY THAT THEY ARE FAMILIAR WITH, OR, BEFORE COMMENCEMENT OF THE WORK, WILL BECOME FAMILIAR WITH, ALL LAWS AND REGULATIONS APPLICABLE TO WORK PROPOSED, INCLUDING OSHA REGULATIONS, G.L. c. 82A, 520 CMR 7.00 et seq., AND ANY APPLICABLE MUNICIPAL ORDINANCES, BY-LAWS AND REGULATIONS AND THEY COVENANT AND AGREE THAT ALL WORK DONE UNDER THE PERMIT ISSUED FOR SUCH WORK WILL COMPLY THEREWITH IN ALL RESPECTS AND WITH THE CONDITIONS SET FORTH BELOW.

THE UNDERSIGNED OWNER AUTHORIZES THE APPLICANT TO APPLY FOR THE PERMIT AND THE EXCAVATOR TO UNDERTAKE SUCH WORK ON THE PROPERTY OF THE OWNER, AND ALSO, FOR THE DURATION OF CONSTRUCTION, AUTHORIZES PERSONS DULY APPOINTED BY THE MUNICIPALITY TO ENTER UPON THE PROPERTY TO MONITOR AND INSPECT THE WORK FOR CONFORMITY WITH THE CONDITIONS ATTACHED HERETO AND THE LAWS AND REGULATIONS GOVERNING SUCH WORK.

THE UNDERSIGNED APPLICANT, OWNER AND EXCAVATOR AGREE JOINTLY AND SEVERALLY TO REIMBURSE THE MUNICIPALITY FOR ANY AND ALL COSTS AND EXPENSES INCURRED BY THE MUNICIPALITY IN CONNECTION WITH THIS PERMIT AND THE WORK CONDUCTED THEREUNDER, INCLUDING BUT NOT LIMITED TO ENFORCING THE REQUIREMENTS OF STATE LAW AND CONDITIONS OF THIS PERMIT, INSPECTIONS MADE TO ASSURE COMPLIANCE THEREWITH, AND MEASURES TAKEN BY THE MUNICIPALITY TO PROTECT THE PUBLIC WHERE THE APPLICANT OWNER OR EXCAVATOR HAS FAILED TO COMPLY THEREWITH INCLUDING POLICE DETAILS AND OTHER REMEDIAL MEASURES DEEMED NECESSARY BY THE MUNICIPALITY.

THE UNDERSIGNED APPLICANT, OWNER AND EXCAVATOR AGREE JOINTLY AND SEVERALLY TO DEFEND, INDEMNIFY, AND HOLD HARMLESS THE MUNICIPALITY AND ALL OF ITS AGENTS AND EMPLOYEES FROM ANY AND ALL LIABILITY, CAUSES OR ACTION, COSTS, AND EXPENSES RESULTING FROM OR ARISING OUT OF ANY INJURY, DEATH, LOSS, OR DAMAGE TO ANY PERSON OR PROPERTY DURING THE WORK CONDUCTED UNDER THIS PERMIT.

APPLICANT SIGNATURE

_____ DATE _____

EXCAVATOR SIGNATURE (IF DIFFERENT)

_____ DATE _____

OWNER'S SIGNATURE (IF DIFFERENT)

_____ DATE: _____

For City/Town use -- Do not write in this section	
PERMIT APPROVED BY	\$_____ Application Fee
PERMITTING AUTHORITY	
DATE	
CONDITIONS OF APPROVAL	

CONDITIONS AND REQUIREMENTS PURSUANT TO G.L.C.82A AND 520 CMR 7.00 et seq. (as amended)

By signing the application, the applicant understands and agrees to comply with the following:

- i. No trench may be excavated unless the requirements of sections 40 through 40D of chapter 82, and any accompanying regulations, have been met and this permit is invalid unless and until said requirements have been complied with by the excavator applying for the permit including, but not limited to, the establishment of a valid excavation number with the underground plant damage prevention system as said system is defined in section 76D of chapter 164 (DIG SAFE);
- ii. Trenches may pose a significant health and safety hazard. Pursuant to Section 1 of Chapter 82 of the General Laws, an excavator shall not leave any open trench unattended without first making every reasonable effort to eliminate any recognized safety hazard that may exist as a result of leaving said open trench unattended. Excavators should consult regulations promulgated by the Department of Public Safety in order to familiarize themselves with the recognized safety hazards associated with excavations and open trenches and the procedures required or recommended by said department in order to make every reasonable effort to eliminate said safety hazards which may include covering, barricading or otherwise protecting open trenches from accidental entry.
- iii. Persons engaging in any in any trenching operation shall familiarize themselves with the federal safety standards promulgated by the Occupational Safety and Health Administration on excavations: 29 CFR 1926.650 et.seq., entitled Subpart P “Excavations”.
- iv. Excavators engaging in any trenching operation who utilize hoisting or other mechanical equipment subject to chapter 146 shall only employ individuals licensed to operate said equipment by the Department of Public Safety pursuant to said chapter and this permit must be presented to said licensed operator before any excavation is commenced;
- v. By applying for, accepting and signing this permit, the applicant hereby attests to the following: (1) that they have read and understands the regulations promulgated by the Department of Public Safety with regard to construction related excavations and trench safety; (2) that he has read and understands the federal safety standards promulgated by the Occupational Safety and Health Administration on excavations: 29 CFR 1926.650 et.seq., entitled Subpart P “Excavations” as well as any other excavation requirements established by this municipality; and (3) that he is aware of and has, with regard to the proposed trench excavation on private property or proposed excavation of a city or town public way that forms the basis of the permit application, complied with the requirements of sections 40-40D of chapter 82A.
- vi. This permit shall be posted in plain view on the site of the trench.

Summary of Excavation and Trench Safety Regulation (520 CMR 14.00 et seq.)

This summary was prepared by the Massachusetts Department of Public Safety pursuant to G.L.c.82A and does not include all requirements of the 520 CMR 14.00. To view the full regulation and G.L.c.82A, go to www.mass.gov/dps

Pursuant to M.G.L. c. 82, § 1, the Department of Public Safety, jointly with the Division of Occupational Safety, drafted regulations relative to trench safety. The regulation is codified in section 14.00 of title 520 of the Code of Massachusetts Regulations. The regulation requires all excavators to obtain a permit prior to the excavation of a trench made for a construction-related purpose on public or private land or rights-of-way. All municipalities must establish a local permitting authority for the purpose of issuing permits for trenches within their municipality. Trenches on land owned or controlled by a public (state) agency requires a permit to be issued by that public agency unless otherwise designated.

In addition to the permitting requirements mandated by statute, the trench safety regulations require that all excavators, whether public or private, take specific precautions to protect the general public and prevent unauthorized access to unattended trenches. Accordingly, unattended trenches must be covered, barricaded or backfilled. Covers must be road plates at least ¾” thick or equivalent; barricades must be fences at least 6’ high with no openings greater than 4” between vertical supports; backfilling must be sufficient to eliminate the trench. Alternatively, excavators may choose to attend trenches at all times, for instance by hiring a police detail, security guard or other attendant who will be present during times when the trench will be unattended by the excavator.

The regulations further provide that local permitting authorities, the Department of Public Safety, or the Division of Occupational Safety may order an immediate shutdown of a trench in the event of a death or serious injury; the failure to obtain a permit; or the failure to implement or effectively use adequate protections for the general public. The trench shall remain shutdown until re-inspected and authorized to re-open provided, however, that excavators shall have the right to appeal an immediate shutdown. Permitting authorities are further authorized to suspend or revoke a permit following a hearing. Excavators may also be subject to administrative fines issued by the Department of Public Safety for identified violations.

For additional information please visit the Department of Public Safety's website at www.mass.gov/dps

Summary of 1926 CFR Subpart P -OSHA Excavation Standard

This is a worker protection standard, and is designed to protect employees who are working inside a trench. This summary was prepared by the Massachusetts Division of Occupational Safety and not OSHA for informational purposes only and does not constitute an official interpretation by OSHA of their regulations, and may not include all aspects of the standard.

For further information or a full copy of the standard go to www.osha.gov.

- **Trench Definition per the OSHA standard:**
 - An excavation made below the surface of the ground, narrow in relation to its length.
 - In general, the depth is greater than the width, but the width of the trench is not greater than fifteen feet.
- **Protective Systems** to prevent soil wall collapse are always required in trenches deeper than 5', and are also required in trenches less than 5' deep when the competent person determines that a hazard exists. Protection options include:
 - Shoring. Shoring must be used in accordance with the OSHA Excavation standard appendices, the equipment manufacturer's tabulated data, or designed by a registered professional engineer.
 - Shielding (Trench Boxes). Trench boxes must be used in accordance with the equipment manufacturer's tabulated data, or a registered professional engineer.
 - Sloping or Benching. In Type C soils (what is most typically encountered) the excavation must extend horizontally 1 ½ feet for every foot of trench depth on both sides, 1 foot for Type B soils, and ¾ foot for Type A soils.
 - A registered professional engineer must design protective systems for all excavations greater than 20' in depth.
- **Ladders** must be used in trenches deeper than 4'.
 - Ladders must be inside the trench with workers at all times, and located within 25' of unobstructed lateral travel for every worker in the trench.
 - Ladders must extend 3' above the top of the trench so workers can safely get onto and off of the ladder.
- **Inspections** of every trench worksite are required:
 - Prior to the start of each shift, and again when there is a change in conditions such as a rainstorm.
 - Inspections must be conducted by the competent person (see below).
- **Competent Person(s) is:**
 - Capable (i.e., trained and knowledgeable) in identifying existing and predictable hazards in the trench, and other working conditions which may pose a hazard to workers, and
 - Authorized by management to take necessary corrective action to eliminate the hazards. Employees must be removed from hazardous areas until the hazard has been corrected.
- **Underground Utilities** must be:
 - Identified prior to opening the excavation (e.g., contact Digsafe).
 - Located by safe and acceptable means while excavating.
 - Protected, supported, or removed once exposed.
- **Spoils** must be kept back a minimum of 2' from the edge of the trench.
- **Surface Encumbrances** creating a hazard must be removed or supported to safeguard employees. Keep heavy equipment and heavy material as far back from the edge of the trench as possible.
- **Stability of Adjacent Structures:**
 - Where the stability of adjacent structures is endangered by creation of the trench, they must be underpinned, braced, or otherwise supported.
 - Sidewalks, pavements, etc. shall not be undermined unless a support system or other method of protection is provided.
- **Protection from water accumulation hazards:**
 - It is not allowable for employees to work in trenches with accumulated water. If water control such as pumping is used to prevent water accumulation, this must be monitored by the competent person.
 - If the trench interrupts natural drainage of surface water, ditches, dikes or other means must be used to prevent this water from entering the excavation.
- **Additional Requirements:**
 - For mobile equipment operated near the edge of the trench, a warning system such as barricades or stop logs must be used.
 - Employees are not permitted to work underneath loads. Operators may not remain in vehicles being loaded unless vehicles are equipped with adequate protection as per 1926.601(b)(6).

- Employees must wear high-visibility clothing in traffic work zones.
- Air monitoring must be conducted in trenches deeper than 4' if the potential for a hazardous atmosphere exists. If a hazardous atmosphere is found to exist (e.g., $O_2 < 19.5\%$ or $> 23.5\%$, 20% LEL, specific chemical hazard), adequate protections shall be taken such as ventilation of the space.
- Walkways are required where employees must cross over the trench. Walkways with guardrails must be provided for crossing over trenches > 6' deep.
- Employees must be protected from loose rock or soil through protections such as scaling or protective barricades.